The New England
Journal of Medicine

VOLUME 213 JULY 4, 1935 NUMBER 1

EDUCATIONAL SYMPOSIUM

THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE

BY WALTER P. BOWERS, M.D.*

THE early history of medical practice in the American colonies shows that the better trained doctors were dissatisfied with the standing of a proportion of the physicians of that period. This led to movements designed to improve conditions relating to medicine, for some persons have seemed to believe that there were more charlatans than educated physicians all through the years preceding the enactment of laws providing for the registration of doctors. Dr. Sigerist, however, in his address before the Congress on Medical Education, Hospitals and Licensure, February 18, 1935, expressed a contrary opinion. However that may be, the doctors in Massachusetts began the movement for the registration of physicians very early, as recorded by Dr. Reginald Heber Fitz in his presidential address before the Association of American Physicians, May 29, 1894, and in the annual oration before the Massachusetts Medical Society, June 10, 1894.

The references are not quoted verbatim but only in substance because of the peculiar literary construction of the earlier periods.

Massachusetts led in attempts at reform in medical practice in this country, for in 1649 an act was passed designed to regulate the practice of chirurgeons, midwives, physicians and others which required of such practitioners conformity with the approved precepts of that day. In 1653 a petition to the "Honorable Court" asked to have it proceed to ascertain whether those who practice both physics and chirurgery to the hazarding of the lives and limbs and the detriment of many, being unskilled in those acts, be restrained until they be "exercised" by skillful and authorized physicians and chirurgeons, and these be approved and licensed by some magistrate. In 1737 arguments were submitted to the local medical society in Boston (founded in 1735 or 1736) in favor of regulating the practice of medicine through examination of a board of physicians. In 1781, when the Massachusetts Medical Society was incorporated, authority was conferred on this body to issue certificates of approval of such as were found competent to practice medicine. These were designated as licensed. In 1789, 1803 and 1819, amendments to the charter of the Massachusetts Medical Society were adopted, one of which gave to licensed physicians the right to recover at law for services rendered and deprived the unlicensed doctors of this advantage.

Soon after the incorporation of the Massachusetts Medical Society, medical graduates of Harvard were made licentiates and in 1837 similar authority was given to the Berkshire Medical Institution.

In none of the various acts, however, was there any provision for the prevention of anyone not thus licensed to practice medicine so that quackery continued to flourish. In 1859 the Legislature rescinded all laws relating to the licensing of physicians, and for the succeeding thirty-five years no laws were passed relating to the practice of medicine in this Commonwealth, although the leading men in the Massachusetts Medical Society strove diligently to secure the enactment of appropriate bills. These efforts were blocked by the opposition of low-grade practitioners aided and abetted by men prominent in public life who claimed that restrictive laws invaded personal liberty and created a favored class.

Thomsonianism seemed more popular in the early stages of this period than regular medicine. This phase of prejudice and credulity was so general, that a full recital of its history would require a volume of considerable size.

Meantime, a general sentiment among doctors throughout the Union was favorable to the regulation of medical practice and this led to the adoption of laws governing the registration of physicians in most of the states. Massachusetts, however, was among the last to take this important step.

The example of the more progressive states spurred the profession in our Commonwealth to vigorous action, designed to interest the people in the importance of raising the standards of medical education and practice.

The effective step which led to the passage of the act creating the Board of Registration in Medicine in Massachusetts was the appoint-

*Bowers, Walter P.—Managing Editor, *New England Journal of Medicine*. For record and address of author see "This Week's Issue," page 33.

ment of a committee of eighteen by the Massachusetts Medical Society under the chairmanship of Dr. G. J. Townsend of South Natick. This committee was strengthened by the addition of Drs. George C. Shattuck, B. E. Cotting, George H. Lyman, H. W. Williams and Alfred Hosmer. The work of this committee consolidated and activated sentiment in the Society which was further roused by Dr. R. H. Fitz, Dr. George W. Gay and Dr. Edwin B. Harvey. It will thus be seen that the stage was set for a successful attempt to bring Massachusetts into line with her sister states, especially so because Dr. Harvey was, in 1894, a member of the State Senate. In association with the committee, Dr. Harvey drafted a bill and worked diligently for its passage against bitter opposition, the character of which was described in the *New England Gazette* as follows:

"What a collection of them there was in the Green-room at first and afterwards in the large hall of the House of Representatives to which an adjournment was necessary on account of the crowds! Medical blacklegs of all kinds, deceitful clairvoyants, long-haired spiritualists, necromancers, wizards, witches, seers, magnetic healers, pain charmers, big Indian and Negro doctors, abortionists, harpies who excite the fears and prey on the indiscretions of the young of both sexes, who treat venereal diseases with the utmost secrecy and dispatch, who have good facilities for providing comfortable board for females suffering from any irregularity or obstruction, who sell pills which they are particular to caution patients when pregnant against using; *et id genus omne.* Some of them looked sleek, well fed and prosperous; others seemed to have come from the slums of destruction. Most of them had a coarse animal degraded look."

The bill was enacted only after several redrafts which, in the last one, provided for the exemption of certain forms of practice in the following words:

"This act shall not apply to commissioned officers of the United States Army, Navy or Marine Hospital Service, or to physicians or surgeons called from another state to treat a particular case, nor to clairvoyants, persons practicing hypnotism, magnetic healing, mind cure, massage methods, Christian Science, cosmopathic or any other method of healing; provided that such persons do not violate any provision of section ten of this act." Section ten provided that "whoever not being registered" . . . "shall advertise or hold himself out to the public as a physician or surgeon" . . . "by appending to his name the letters M.D. or using the title doctor, meaning thereby a doctor of medicine, shall be punished," etc. That is, these several defined cultists could not legally practice medicine after the passage of the act.

The Board of Registration in Medicine came into being in July 1894 by the appointment by his Excellency, Frederick T. Greenhalge, of Edward Jacob Forster of Boston, Augustus L. Chase of Randolph, Daniel B. Whittier of Fitchburg, Walter P. Bowers of Clinton, Stephen H. Blodgett of Cambridge, C. Edwin Miles of Boston and Augustus C. Walker of Greenfield. Dr. Blodgett almost immediately resigned and his place was filled by the appointment of William C. Cutler of Chelsea.

The Massachusetts Medical Society was represented by Drs. Forster, Walker and Bowers, the State Homeopathic Society by Drs. Whittier and Cutler and the State Eclectic Society by Drs. Chase and Miles. The law provided that "no member of the board shall belong to the faculty of any medical college or university and not more than three members shall at any one time be members of any one chartered medical society." These restrictions still exist.

The board was duly organized July 10, 1894 with the choice of Dr. C. Edwin Miles, Chairman, and Dr. Edward J. Forster, secretary, and proceeded to register physicians as specified in the act, with five designations.

A. To graduates of legally chartered medical colleges or universities having the power to confer degrees in medicine who were practicing medicine in this Commonwealth, July 10, 1894.
B. To those who had been practitioners of medicine in this Commonwealth continuously for a period of three years next prior to June 7, 1894.
C. To graduates of legally chartered medical schools or universities having power to confer degrees in medicine in this Commonwealth thereby being exempt from examination up to January 1, 1895.
D. To graduates examined by the board.
E. To non graduates examined by the board.

The law provided a dragnet which swept into recognition a large number who were not educated physicians as classified under B and until 1915, the board continued to register applicants who could pass the examinations even though not possessed of a medical degree. Even though these earlier examinations were certainly elementary in character, a considerable proportion of applicants who came under the examination clause were rejected.

In reports of the board, subsequently submitted, repeated explanations were made, that the conditions relating to medical practice in Massachusetts were not satisfactory, in that complaints of irregular practice reported to police departments were not always followed by prosecutions and recommendations to the Legislature for changes which would tend to promote

protection of the people from incompetent or unscrupulous practitioners did not receive adequate attention. An amendment modifying section ten relating to the definition as to who might practice medicine was enacted May 10, 1895, and helped to clarify that situation relating to who could or could not practice medicine.

Since osteopaths were not included in the exempted classes and complaints were made that they were practicing medicine, they sought inclusion among the other cults and were successful in the passage of an amendment to the law. This was followed by the appointment of an osteopath to the board in 1907 and further recognition of this cult was taken by the Legislature in 1909 by an act which provided for the registration of osteopaths under two classifications, in substance:

1. Any person who had been in active practice in this Commonwealth prior to January 1, 1909 and was a graduate of a school or college of osteopathy giving certain specified courses.
2. Those who had practiced osteopathy in this Commonwealth for four years prior to the passage of the act.

Such registrants were not allowed to prescribe or administer drugs for internal use or perform major surgical operations or engage in the practice of obstetrics. In this act, the Legislature decreed that the practice of Osteopathy is the practice of medicine. This had also been the decision of the Supreme Court in a case that went up on an appeal. As heretofore, osteopaths in common with other applicants, could register under the regular procedure of examination because no requirement for a medical education had been adopted.

In 1910, at the time of the establishment of a Board of Registration of Nurses, the clerical functions of the boards of medicine and nurses were carried on in the same office, and the secretary of the medical board became ex-officio secretary of the nursing board.

About this time, chiropractors engaged the attention of the board and in 1914 eight were convicted of practicing medicine without being registered. This cult has been striving for state recognition ever since, even going so far as to attempt the establishment of a chiropractic school. This effort was frustrated in 1915, when a student sought to qualify for examination under a certificate of attendance from the New England College of Chiropractic, located in Boston. Unfavorable court action followed and this institution folded its tent and silently stole away. In this year (1915) an important amendment to the medical registration law was enacted which provided that applicants for registration must show the possession of the degree of doctor of medicine or its equivalent from a legally chartered medical school having the power to confer degrees in medicine. This included osteopathy under the decree of the Legislature.

Encouraged by this modest addition to the law, the Board of Registration petitioned for further requirements and in 1917 the specified time given to teaching medicine was defined as thirty-six weeks in each year of a full four years' course. This was changed in 1933 to thirty-two weeks, with more definite specifications of the time covered each year. Meantime, in 1922, the Legislature was persuaded to require of applicants for registration a premedical course equivalent to that required for graduation from a public high school and even only this after twenty-seven years of continuous appeals to the Legislature for a law which would give reasonable assurance of average premedical experience of applicants for registration. No changes relating to premedical or medical education have been incorporated in the law since that time, except that relating to the number of weeks required for a medical education as stated above.

At the present time, forty state medical examining boards demand of applicants, graduation from medical schools which require two years of college work; four, one year of college work; and five require only a premedical training in high school courses. These last are Delaware, Missouri, Nebraska, Ohio and Massachusetts, but all, except Massachusetts, have the power to demand of applicants, graduation from medical schools which are "accredited" or "reputable" or "approved" or "in good standing"; that is, these boards can accept or reject candidates according to their estimates of the efficiency of each college from which applicants apply for examination. Massachusetts is alone in having no right to determine anything relating to the quality of instruction in medical schools but must accept for examination all who are graduates of chartered medical schools which give courses covering four years of thirty-two weeks in each year. She stands in the lowest position in this regard in the United States.

Other amendments to the law provided for protection to medical students and hospital interns through limited registration because of a threat by enemies of the board to bring action against these men for practicing medicine without being registered. Certain other changes were made from time to time in order to give the board power to deal with various irregularities in medical practice.

The administration of the law to register chiropodists was also assigned to the Board of Registration in Medicine. In 1924 authority was conferred to register the diplomates of the National Board without examination. The number so registered up to April 1935, is 239. This practice has been adopted by forty-two states and three territories. There is an inconsistency in this, in that Massachusetts adopts the standards of an organization of which it is no or-

ganic part, but will not allow its board to accept standards of other reputable evaluating organizations. In other words, this Commonwealth does not have any concern respecting the standing of medical schools and depends on the Board of Registration to determine the qualifications of candidates for licensure by an examination. The consensus among those regarded as authorities in medical education is, that such examinations by state boards, as are feasible under the Massachusetts law, do not prevent the registration of some unworthy applicants. Furthermore, the most effective way to insure the training of qualified physicians is to control the source of supply.

Since the examinations, conducted by the board, seem to be its chief function relating to medical education and the prevention of incompetent medical practice, a detailed statement of the standing of out-of-state medical schools is not especially important, for there are only a very few unclassified medical colleges besides the osteopathic schools which are applying to our board for recognition. A slight change in our law would clarify this situation.

With the evolutionary changes in medical education which took place in this country in the early years of this century when we had about twice the number of medical schools as at present, only a few of the unapproved schools are now able to carry on. The problem is how to bring them to a position of respectability or, if hopeless, how they may be eliminated. The facts should be faced.

In the early years of medical registration in this state, the examinations were as elementary as the list of subjects employed. Written questions in the field of surgery, physiology, pathology, obstetrics and the practice of medicine covered the subjects. The list has been extended from time to time and now includes anatomy, histology, bacteriology, gynecology, diagnosis and therapeutics, pediatrics, toxicology, psychiatry, biology, chemistry, physics, and hygiene. It is probably impracticable to test the knowledge of applicants for examination in all of these subjects to a satisfactory degree under the present conditions, for it would mean a larger board and the expenditure of time beyond that at the disposal of busy practitioners. In addition, it is unlikely that the state would appropriate the necessary money, for appeals for larger appropriations have not met cordial responses although the revenue derived from the board's activities has contributed to the state treasury nearly forty-five thousand dollars in excess of its expenditures. Hence, it seems probable that the present system will have to be continued until other amendments will have been adopted.

The wide disparity in the comparative figures shown in the records of the rating of graduates of approved and non approved schools is significant.

The changes in subsequent years show improvement in the rating of graduates from approved schools, but no appreciable changes in the non approved schools. This last statement is confirmed by an analysis of the figures pertaining to eighteen years of results of examinations of the three unapproved schools in Massachusetts previous to 1934. Of graduates of one such school, the percentage of failures was 58+, of graduates of a second school, 54+, and of representatives of a third school 64+. With the added years another fact is significant in that the number of repeaters is growing and from non approved schools in a recent examination, 88 were thus designated. All of these facts tend to show that the probability of these non approved schools ever emerging from this class is unlikely, unless taken in charge by groups of persons of requisite ability and with adequate financial resources.

SUMMARY

This brief history of the Massachusetts Board of Registration in Medicine will convey an inadequate record of its accomplishments.

It was created in response to the efforts of organized medicine in this state over bitter opposition. The intent of its sponsors was to protect the people from evident improper and dangerous forms of medical practice. It has made only a partial success of this expectation because of hostility from within and outside of the profession. The original law was defective but was better than none. The Legislature has been persuaded to make certain changes which have added to the power of the board in dealing with criminal and unethical practices. The board has taken advantage of all powers conferred in the revocation and suspension of licenses in appropriate cases. It has consistently and persistently tried to raise the standards of medical education and service.

In the beginning it took away the right to practice of 618 persons who tried to qualify under the liberal provisions of the initial law, and under its examinations has on many occasions refused to license over fifty per cent of applicants for registration. For nearly twenty years it had to examine all comers who cared to apply regardless of their qualifications. It succeeded in 1915, in the passage of an act, in securing the requirement that only those possessed of an M.D. degree or its equivalent, would be accepted for examination, and later had amendments added defining the time and certain premedical studies which medical schools must observe in which applicants for registration have acquired their medical training.

Several other changes were for the protection of medical students and hospital internes. When the board began to function there were only three medical schools in this state. There are now six, three recognized and three unrecognized by the Council on Medical Education

and Hospitals. The graduates of these unclassified schools now suffer most in the examinations conducted by the board, and the rejected candidates furnish a very large proportion of the repeaters. Furthermore, it is largely the opposition of representatives of these three sub-standard schools which has prevented progress in raising the standard of medical education in this state so that Massachusetts stands with a wide open door to welcome all who are graduates of chartered medical schools, regardless of their standing. Its requirements in this respect are inferior to all of the other states of the Union.

His Excellency, Governor Curley, in his inaugural address last January said, "The Commonwealth of Massachusetts has always maintained an enlightened interest in matters pertaining to the health of the citizens." This is true of many of its citizens and institutions dealing with the health of the people, but is not true of its Legislature in certain particulars.

The immediate question of most importance is, how long will Massachusetts claim to maintain "an enlightened interest in matters pertaining to the health of its citizens"?

The quality of medical practice reflects in a large degree the quality of instruction given by schools that train doctors. In order to bring about improvement in dealing with individual illness and to promote public health, it will be necessary to attack the problem at its source, that is, the medical school.

The Board of Registration has given loyal service to the state and should be accorded cordial coöperation. Its members have sacrificed their personal interests in giving freely of their time. Future progress will depend on a general demand for better laws.

MEMBERS OF THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE

	Date of Appointment	Date of Retirement
Edward J. Forster	1894	1895
Augustus L. Chase	1894	1921
Daniel B. Whittier	1894	1895
Walter P. Bowers	1894	1922
Stephen H. Blodgett	1894	1894
C. Edwin Miles	1894	1907
Augustus C. Walker	1894	1909
William C. Cutler	1894	1899
Edwin B. Harvey	1895	1913
Samuel H. Calderwood	1895	1925
Nathaniel R. Perkins	1899	1922
Matthew T. Mayes	1907	1923
Charles H. Cook	1909	1919
George L. Richard	1913	1915
Michael F. Fallon	1915	1922
Charles E. Prior	1919	1927
Francis X. Corr	1921	1928
*Royal P. Watkins	1922	
George H. Janes	1922	1924
Frank H. Vaughan	1923	1930
John M. Birnie	1924	1927
Henry L. Houghton	1924	1932
*Charles P. Sylvester	1925	
Irving J. Walker	1927	1928
*Robert T. Hovey	1928	
*Edward A. Knowlton	1928	
Horace D. Arnold	1927	1931
*Stephen Rushmore	1931	
*Daniel J. Hurley	1931	
*Mark Shrum	1932	

*Member of the board April, 1935.

THE VALUE OF THE MEDICAL LIBRARY IN MEDICAL EDUCATION

BY LINCOLN DAVIS, M.D.*

THE value of the medical library to the medical student, the practising doctor, and the community has been emphasized over and over again and is, I think, very generally recognized in principle. Sir William Osler and other medical leaders have eloquently and often discoursed on this theme. We must remember, however, that a new generation is continuously replacing the old and that old truths must be repeatedly restated although at the inevitable discount attending the display of second-hand goods. The outstanding feature of the adequate library is that there the original sources of information may be found; the student or practitioner who is unacquainted with the benefits of the library habit is urged as a starter to peruse the addresses by Oliver Wendell Holmes, William Osler, George A. Vincent, and Harvey Cushing on that subject.

Let me quote from a few of the maxims of these bibliophiles.

"Our American atmosphere is vocal with the flippant loquacity of half knowledge. . . .

*Davis, Lincoln—President, Boston Medical Library. For record and address of author see "This Week's Issue," page 33.

Half knowledge dreads nothing but whole knowledge." O. W. Holmes in 1878.

William Osler exhorts us in making use of the library to "cultivate the critical investigating faculty. Get closer to the great minds of the race."

Dr. Vincent aptly calls the library the "social memory".

Harvey Cushing has said that the soul of an institution of learning resides in its library. One of the world's earliest and most famous libraries was that at Thebes in the time of Rameses II. It was said by Siculus to bear the inscription "Dispensary of the Soul."

Breasted tells us that the oldest known scientific document is a surgical treatise known as the Edwin Smith Papyrus written during the Pyramid age, perhaps by Imhotep himself. The surviving copy written in the 17th century B.C. although incomplete is well preserved, a priceless treasure brought to light by American research.

The respect and esteem in which the record of the written word has been held from the earliest times are shown by the large number of authentic manuscripts copied and transcribed from the classical periods of Greece and Rome, which have survived the vicissitudes of a turbulent history.

The confusion of historians concerning the calamitous destruction of the famous libraries of Alexandria variously ascribed to the accidental spreading of the fires set by the soldiers of Julius Caesar, and two centuries later to the harsh orders of the Emperor Aurelian, still later to the fanatical excesses of the Christians in carrying out the ediet of Theodosius, and finally in 640 A.D. to the fury of the conquering Moslems under the Caliph Omar, is no doubt due in part to the desire to shift upon the other fellow the responsibility for a reprehensible act. In our own time something of the same kind is seen in the controversy as to the destruction of the Louvain library.

America is essentially library minded. Every respectable township has its general library so often the gift of some prosperous and loyal native son. Fine medical libraries exist in most of the principal cities. The splendid Surgeon General's Library extends a helping hand to every lesser medical or general library in the land, through its liberal policy of inter-library loans. The great national medical and surgical societies maintain reference libraries which furnish valuable assistance to their members. The medical schools have either libraries of their own or access to large urban medical libraries.

Massachusetts is preëminently equipped with facilities for consulting the literature of medicine. Our principal medical schools have splendid library facilities, the larger hospitals maintain adequate working libraries, and some of the larger cities have special medical collections. The Boston Medical Library with one of the best medical collections in the country maintains a reading room open to all practitioners and students, with a system of inter-library loans which makes its books available to physicians wherever located. Our medical library resources are certainly ample. How about their use?

The average busy practitioner engrossed with the care of the sick and faced with the serious problem of earning his daily bread finds little time for reading. If he takes a medical journal or two and occasionally glances at them he feels that he is doing all that can be expected of him in keeping up with medical literature. He seldom enters a library. The equally busy but more ambitious man who attends medical meetings and occasionally prepares papers for presentation before them, may have the library brought to him through the services of the national library bureaus which furnish bibliographies, references, abstracts, translations, and packets of reprints, on almost every subject. "Complete research service at a reasonable charge." I do not question the value of this service if used by one who knows enough to know how much to use it. I do believe it encourages the production of a good many articles whose chief value is in their imposing bibliographies.

The doctor should have learned how to use a medical library while he was a medical student. He should have learned how to dig out the references himself and get at the original sources. Of course, if unfamiliar with some foreign language he must rely on a translation, but he should make his own abstracts and see with his own eyes every article quoted.

I believe it is now a part of the curriculum of most schools to require students to familiarize themselves with the technique of literary research. The reduction in the number of lectures and the increase of free time permit of independent reading. In a few advanced schools, courses are offered in the history of medicine and students are given an insight into the alluring field of classical medical literature. Familiarity with original sources is cultivated and the seed of literary scholarship is planted in those capable of germinating it. A student so educated will always come back to the library at every available opportunity in after years with real affection and with the knowledge of how to use his time to the best advantage.

Furthermore, he will be inclined to make time to do so. He is in a position to appraise scientific literature and discriminate between what is sound and reliable and what is not. He can go straight to original sources and will readily detect padded bibliographies.

Recently, in accordance with the trend of the times toward making learning easy and in the laudable endeavor to make available to the student classic medical texts, selected excerpts from

famous writings in medicine and the allied sciences have been published. These collections are of distinct value for ready reference and serve to stimulate deeper reading on the part of the student, but excerpts, and especially abstracts divorced from their context, are apt to give a somewhat distorted view and, unfortunately, in one or two instances at least inaccuracies have crept in which make reference to the originals more than ever necessary.

If advice might be ventured by one who does not pretend to have followed his own precepts, I would say to the practitioners of medicine and surgery, go to your medical library in person and cultivate the habit of using it. If you do not know how, learn how. There are young librarians always eager to show the way. If you have not time, make a little time. Keep in touch with the world's progress as set forth in the current periodicals. Do not neglect the foreign periodicals, especially those in your own specialty. Look over the new books, and occasionally glance at an old one. The library furnishes a liberal and inexpensive postgraduate course to its initiates.

To the young man starting on his career, no matter where or in what circumstances, I would say subscribe to two or three of the best periodicals and do not let a single number get by you. Keep a card catalogue of articles which arouse your interest. At an early stage select some subject, never mind how minute, trivial or obscure —from carrots and the common cold, or the growth of the finger nails, to the interactions of the hormones of the ductless glands, and keep abreast of all progress in your subject. Be an authority on the literature at least. This may be an encouragement of faddism, perhaps, but honest fads tempered by common sense do no harm and sometimes lead to real achievement. Visit your neighborhood medical library at regular intervals and check up on your progress. Familiarity with the work of others may suggest ways in which you can do a little worth-while clinical research of your own.

Recently the Japanese surgeon Kyusaku Ogino made some simple observations on the ovulation of the human ovary which have changed the whole aspect of the physiology of conception. Any one of ten thousand operating surgeons in this country might have made such observations, if he had had the vision. In a select few vision may be innate, for the majority it must be developed by reading, study and thought.

THE COMMUNITY HOSPITAL AS A CENTER OF POSTGRADUATE EDUCATION

BY JOSEPH H. PRATT, M.D.*

IN many ways the development of the rural hospital has advanced medical knowledge among the physicians within reach of its influence. The standards set up by the American College of Surgeons and the American Medical Association have been of help in improving the quality of the work of small hospitals, although only 15 per cent of these meet the requirements.

In discussing the subject of graduate training in medicine there is possibly a tendency to lay too much stress on the ways and means of furnishing instruction and too little on the attitude of the physicians whom the national and state organizations wish to have instructed. To be successful some thirst for knowledge and willingness to work must exist in the minds of the members of the staff of the small hospital and in those of the physicians in the surrounding countryside. Unless the local men wish to increase their knowledge by study the best methods will fail. Of the man who knows it all and for this reason does not attend the meetings of his county and state societies nothing can be expected. They are a waste of time, he says, and he feels better at home, and perhaps, says Osler, "that is the best place for a man who has reached this stage of intellectual stagnation."

The word student it may be recalled comes from the Latin word *studere* meaning to be eager, zealous or diligent. When these qualities are lacking spoon feeding is always desired, but this is as poor a method of mental nurture for graduates as undergraduates. Now it is unfortunately true that lack of energy is a characteristic of advancing years. With youth behind us it is increasingly difficult to make sacrifices for the sake of knowledge; our minds like our bodies at a certain age become fixed (Jowett). Fortunately a few keep up their interest in acquiring knowledge throughout life. It is these rare minds that sometimes are able to leaven the dough in which they find themselves. To take an outstanding example consider what a stimulus James Mackenzie must have been to his colleagues in the provincial city of Burnley during his long career there as a general practitioner; that is if they were able to catch a little of his enthusiasm and zeal for the truth. At all times "many are the wand bearers and few are the mystics". Sir James Mackenzie himself felt that his influence was slight until the publication of his book on the pulse attracted attention in Germany and America to

*Pratt, Joseph H.—Physician-in-Chief, New England Medical Center. For record and address of author see "This Week's Issue," page 43.

his work. In his own country it aroused little interest. He told me that during a period of fifteen years he read papers in Manchester, the medical center of Lancashire, detailing his observations and discoveries and not one of them drew forth any discussion.

In dealing with the subject of graduate medical education it seems that we should be content to provide practising physicians in the country with facilities for acquiring knowledge and not to be discouraged if the percentage of practitioners is small that takes advantage of them.

Measures for increasing the knowledge of practising physicians in diagnosis and treatment have multiplied in New England within the past decade. During the last two years in Massachusetts regular graduate courses have been given under the auspices of the Massachusetts Medical Society throughout the state. They have been admirably organized and well attended. The Connecticut Medical Society now gives a clinical course of graduate instruction at New Haven each fall lasting several days. Leading teachers from Boston, New York, Philadelphia, and other medical centers give instruction in addition to members of the Connecticut Medical Society. Some hospitals in neighboring states have offered attractive clinics. For example, the Central Maine General Hospital at Lewiston provides an all day session every month or so for practitioners. Some of the leading specialists in Boston have given clinics in this series and the attendance has been large and enthusiastic.

Fellowships paying an adequate stipend have been established in Massachusetts by the Commonwealth Fund of New York so that rural practitioners in this state are able to come to Boston for a month or more of study. The Bingham Associates Fund for the Advancement of Rural Medicine has given fellowships to practitioners in Maine for a period of study at the Medical Clinic of the New England Medical Center in Boston. These fellowships are available for from one to four months.

Within recent years facilities for diagnosis have been enlarged in the hospitals throughout New England by installing modern x-ray apparatus and equipping clinical laboratories under the charge of well-trained technicians. The chief hospitals in the larger cities employ full time pathologists. Many hospitals in the smaller cities within a range of fifty miles from Boston have visiting pathologists who are connected with the pathological departments of Harvard, Tufts and Boston University. In these hospitals the number of autopsies is increasing. In a recent month in a hospital ten miles from Boston, autopsies were made on 100 per cent of the fatal cases.

Probably autopsies performed by able pathologists offer the soundest method of instruction that can be given in any hospital and are of the greatest value to those who have studied the cases during life. "Pathology is the basis of all true instruction in practical medicine" (Wilks). This was the motto Dr. Osler selected for the title page of the first pathological report from the Montreal General Hospital. It was the guiding principle in his own education. "Problems in physiology and pathology," Osler said, "touch at every point the commonest affection, and through exercise in these . . . the man is chastened, so to speak, and can never, even in the daily round of the most exacting practice, degenerate into a money-making machine."

In his address on the Educational Value of the Medical Society Osler emphasized the importance of the demonstration of instructive specimens in morbid anatomy. "After all has been done, many cases of great obscurity in our daily rounds remain obscure, and as post mortems are few and far between, the private practitioner is at a great disadvantage, since his mistakes in diagnosis are less often corrected than those of hospital physicians. No more instructive work is possible than carefully demonstrated specimens illustrating disturbance of function and explanatory of the clinical symptoms." (Osler.) Next to the patient himself the hospital pathologist is the best teacher in the rural hospitals.

Staff meetings at which clinical cases are demonstrated can be of great educational value. The minimum requirements of the American College of Surgeons include a staff meeting to be held at least once a month. Members of the Staff are instructed "to review and analyze at regular intervals their clinical experience in the various departments of the hospital, such as medicine, obstetrics and the other specialties; the clinical records of patients free and pay, to be the bases for such review and analyses." The presentation of instructive cases by the physicians who have studied them adds interest and value to these conferences. Ingenuity should be exercised to make the meetings profitable. Dr. Ochsner of New Orleans suggests four methods of assuring a thorough review of the clinical work at the staff conference of which the following two seem especially commendable.

"1. A week before the meeting abstracts of the cases are given to two members of the Staff, neither of whom has seen the case and whose only interest in it is scientific. These two persons open the discussion and this is followed by general comment, without any reference to the attending physician. Laboratory findings are presented, including the report on the pathology which is given by the pathologist himself. The discussion is closed by the chairman who reads a summary of the case, including the final diagnosis and treatment.

"2. The facts concerning the cases are presented by the physician in charge without any mention of the ultimate findings, the final diagnosis, or the treatment, and then general discussion takes place. With this method the staff is more apt to discuss the case impartially because being unaware of the ultimate findings, they cannot be accused of destructive criticism. After general comments by staff members the remaining details, including operative and necropsy findings are presented by the attending physician."

Whenever possible the pathologist should show the gross and microscopic specimens. If the meetings are to be helpful those present must express their opinions freely even when they vary from those of the physician in charge of the case. When freedom of discussion is absent the meeting may be a means of disseminating error rather than truth and it will certainly fail to be inspiring. Not long ago, at a well attended staff meeting held in a suburban hospital, a physician reported a case of sudden death occurring in a patient under his care in the hospital as doubtless due to cerebral hemorrhage. There was no autopsy. No one questioned the diagnosis. In fact there was no discussion. After the close of the meeting I asked the member of the staff who had invited me to be present if he thought none of the hospital physicians present knew that coronary disease and pulmonary embolism are the usual causes of sudden death. "Of course we knew that," my friend replied, "but it would never have done to have disputed the old man's diagnosis. He would have regarded it as a personal affront." I am afraid such examples of unwillingness to speak the truth are not uncommon in staff conferences of other hospitals when autopsies are rarely obtained.

The fewer autopsies a physician sees on his own cases the more confident he is in the correctness of his diagnoses. There was truth in Osler's comment, that morbid anatomy enables the physician "to correct his mistakes, and if he reads its lesson aright may serve to keep him humble."

The importance of the hospital library in education should be stressed. The leading weekly and monthly journals should be taken and new books purchased. If each member of the staff contributes to its maintenance as he should, he will be more apt to take pride in the library and to use it, and his self-sacrifice, if he has made any, will do him good.

The Commonwealth Fund has sponsored six first class rural hospitals in different parts of the country for educational purposes. One of these is the Franklin County Hospital in Farmington, Maine. In the adjoining county in the town of Rumford the Bingham Associates have added to the facilities of the excellent Community Hospital by paying the salary of a resident physician and providing a new x-ray equipment, an electrocardiograph, basal metabolism machine, new operating table and some apparatus for the clinical laboratory. In addition a library of about 200 recent medical and surgical books was given to the hospital, and leading periodicals furnished.

New means of diagnosis involving the use of instruments of precision are a hindrance rather than a help unless there is someone in a hospital who is skilled in their use and in the interpretation of the findings. Few clinicians have had as broad a knowledge of physiological and pathological chemistry as Friedrich v. Müller. Yet he is quoted by one of his pupils as having said that his percussion fingers are worth more to the practising physician than a whole chemical laboratory. There is certainly a tendency to overrate laboratory procedures and to underrate the importance of a careful history and a thorough physical examination. Often when asked in private practice to see patients in consultation the physician in charge has handed me a report of a urine or blood examination or an x-ray examination with the implication that was all one needed to know about the case. A few years ago in making a visit with a physician in charge of the medical service of an exceptionally well-equipped rural hospital, I was asked my opinion in a couple of cases. The first was one of pericarditis with effusion. Although the physical signs were typical they had not been detected. The diagnosis I learned had been made by the radiologist. Books were consulted and by some strange misreading of a standard text it was thought that to perform paracentesis the needle should be inserted just to the left of the sternum in the fourth or fifth interspace—exactly in the normal position of the internal mammary artery. A surgeon was called and he inserted a needle in the position just mentioned. Hemorrhage resulted and the patient collapsed. The second case was one of cough, continued fever, loss of weight, and râles over the upper lobe of the right lung in a young man. There had been a pleurisy with effusion a couple of months before admission. When I told the doctor it seemed to me to be a typical case of pulmonary tuberculosis he said that could not be the diagnosis as a guinea pig inoculated with the pleuritic fluid did not develop tuberculosis! The conclusion is justified that in these cases nothing was gained by having available an x-ray machine and a bacteriological laboratory.

For the past three years members of the resident medical staff of the New England Medical Center have acted as residents at the Rumford Community Hospital for periods ranging from one to four months. They have made the examinations in all cases admitted to the hospital and have kept the records. As the men have had two to three years of hospital experi-

ence before going to Rumford they have been of more help to the hospital staff and to the patients than young graduates who had not served an interneship would have been.

Bingham Fellowships offered to members of the visiting staff of the Rumford Hospital were accepted by nine out of the total of eleven physicians who are in attendance. These doctors when receiving graduate instruction all worked in the medical clinic of the Boston Dispensary where they took histories and made and recorded physical examinations under the supervision of one of the senior men of our staff. It was hoped that the educational value of personally examining patients and recording their findings would be so impressed upon these men that they would write good notes after resuming work in their own hospital.

The importance of careful case taking was possibly more appreciated a hundred years ago by the men who were establishing hospital services than it is by physicians similarly engaged today. Then the field of physical exploration had recently been opened up by the work of the French school, especially Corvisart, Laennec, and Louis. In 1811 when money was raised for the building of the Massachusetts General Hospital, Boston had a population of only 34,000. Conditions were in some respects comparable to those in many small cities today. The founders of the Hospital were two men then in the vigor of early middle life, James Jackson and John Collins Warren. They both realized the value of good hospital records. The case report of the first patient is still preserved. The painstaking penmanship indicates the importance attached to it. "It has long been my wish," wrote James Jackson, "to make the records of the hospital useful to the cause of science . . . the observation of cases must be accurate, and must be faithfully stated. If this is not done, we shall be led into error, not to truth. . . . It has been the practice at the Massachusetts General Hospital, in the medical department, to note the state of the patient every day, in acute cases as our records show." The records of Dr. Warren's hospital practice copied for his personal use filled six large folio volumes. The facts and observations contained in them furnished the basis for his work on tumors, the first monograph to be published on this subject. A reviewer of this volume describes the case reports as "clear, simple and graphic, they bear the unaffected impress of truth."

In planning graduate courses it is sometimes forgotten that "the bedside is always the true center of medical teaching." It has only been by observation of facts carefully recorded at the time and later analyzed that clinical medicine has made its advance, and this same method must be employed by every student if he is to educate himself. Speaking of his old master, Oliver Wendell Holmes says, "that to follow him in his morning visit was not only to take a lesson in the healing art, it was learning how to learn, how to move, how to look, how to feel, if that can be learned. To visit with Dr. Jackson was a medical education."

It is a question if much can be learned that is of lasting value from lectures or clinical demonstrations unless the information gained from them is made the starting point for personal work. When I entered Dr. Mall's anatomical laboratory as a student I was amazed to find that we were to have no lectures or demonstrations. "We demonstrate to ourselves from our own dissections," said a student and so we did. In his description of the anatomical course at the Johns Hopkins University, Mall said, "I believe that there is but one way to learn any subject, and that is through study. The very name student tells what the person so named should be doing. . . . If we can make the student work thoroughly and carefully, a great result is achieved. It makes of him an artist, an actor, an expert, not a dilettante. He is upon the stage, not in the audience." This says Dr. Sabin was "Mall's fundamental contribution to education—the concept that self-education is the only form of lasting value, the inductive method with the student as actor."

In planning instruction for practitioners in clinical medicine should not an effort be made to make actors of them? Might it not be well if the visiting doctors who give graduate instruction in community hospitals adopted a rôle similar to that of a dramatic coach and taught the local men to put on their own show? By that I mean the working up and demonstration of their own cases with general comments based on a study of the recent literature dealing with the disease under consideration. The visiting teacher who had aided them in gaining increased knowledge of their subject might with profit then give a short lecture. I believe this reversal of the usual order would increase the value of such courses, and it would be the only kind of education as Mall maintained that really counts, namely self-education.

NOTES ON THE SMALL HOSPITAL AS A CENTER OF POSTGRADUATE EDUCATION

BY W. EDWARD STOREY, M.D.*

1. A small hospital is easily accessible and familiar to physicians practising in the vicinity. A daily contact with the hospital pathologist and the house officers who have a frequent contact with leaders in large centers gives the practitioner the best *practical* opportunity to keep informed. In large centers where there is much routine work, research, and advanced discussion of problems the practitioner is too often self-conscious, timid, and reluctant to ask questions. This difficulty is more easily overcome in the small hospital where there is more time for explanation and all are familiar to the practitioner.

2. There are those, such as the hospital pathologist and house officers, who are constantly available and who are glad to consult with the practitioner, to suggest accepted measures for diagnosis and treatment and to help him follow up the scientific side of the case.

3. Periodic teaching clinics conducted by leaders from large centers are easily organized and may give the practitioner an extra contact with the very heart of medical progress at no extra cost of time, money, or trouble. Clinics of this character were especially successful at Lewiston, Maine, recently, where they were attended almost unanimously by the staff and by other local physicians who were members of another hospital staff and even by physicians who lived as far as twenty-five to forty miles away (the exact percentage of attendance on these days can be obtained from the registry at the Lewiston hospital). Diagnostic clinics with the patient present were held in the mornings and those present had a first-hand opportunity to see how a difficult diagnosis may be arrived at by narrowing the number of likely possibilities. Ward rounds were made in the afternoon during which all interesting cases on the wards were reviewed and helpful suggestions made. In the evening some topic of practical as well as scholastic interest was presented in the form of a lecture, often with lantern slides and pathologic specimens, followed by a general discussion in which all were encouraged to enter. The fruits of these clinical days become increasingly apparent in the technique and reasoning of the local practitioners.

4. The presence of a resident pathologist is highly desirable; he makes it possible for the practitioner to avail himself of tissue sections, gross specimen study, and to follow his patient to necropsy with more ease and less expense and embarrassment than would otherwise be possible. The advantage of getting all practitioners to consider as a matter of course the pathologic phase of their cases is obvious.

5. Library facilities, however modest, are a source of information and inspiration to those who otherwise might fail to do any reading or reference work on an interesting case or group of cases. The library at Lewiston was assembled through contributions of books from various staff members. Standard journals in several lines of work were provided through voluntary contributions. The library served a very useful place in the hospital's program of postgraduate education.

6. Through newspaper notices of the hospital activities, members of the community will become increasingly confident in the progressiveness of its local physicians and will be inclined to seek their advice first before going elsewhere.

7. By its welcome to all, the small progressive hospital makes it the accepted thing for a practitioner to manifest his natural interest in scientific medicine without feeling conspicuous or apart in doing so. Indeed, it makes it imperative with the consequent result of a better quality of work.

*Storey, W. Edward—For record and address of author see "This Week's Issue," page 33.

INTERNSHIPS IN MASSACHUSETTS HOSPITALS

BY CHARLES H. LAWRENCE, M.D.*

MASSACHUSETTS has three approved medical schools from which there graduate a yearly average of three hundred doctors, practically all of whom seek to fit themselves for the actual practice of medicine by serving as interns in hospitals qualified to furnish them proper experience and instruction in return for the essential service which they render in the conduct of such institutions. There are in this state thirty-five hospitals which are approved for internships by the Council of Medical Education and Hospitals of the American Medical Association. These offer a total of three hundred and forty-six internships for medical graduates. It is, therefore, possible, at least theoretically, for every graduate of a recognized school in Massachusetts to continue his medical education in an approved hospital within the state.

As a matter of fact, the most recent available

*Lawrence, Charles H.—Physician, Boston Dispensary. For record and address of author see "This Week's Issue," page 33.

figures show that 237 internships in approved Massachusetts hospitals are occupied by graduates of Massachusetts schools. Of the remainder, twenty-six are held by graduates of schools in other New England states and eighty-two by graduates of schools outside New England. Lacking a statement from each intern, of the reasons for his choice of hospitals no precise conclusions can be drawn from these figures, but they do indicate that practically 80 per cent of the graduates of the schools in Massachusetts find internships more or less satisfactory to them in the approved hospitals in the state, and that competition from other schools, and probably in a few instances personal reasons, compel about 20 per cent to seek internships elsewhere or in a few instances to begin practice immediately. It would be extremely interesting to learn the reasons which determine each intern's selection, and to obtain from him, at the end of his service, an opinion as to whether his choice had been justified by his experience. Such a compilation would furnish material of great value to medical schools, graduates seeking internships, and to trustees of hospitals desirous of increasing and improving their intern staffs.

In default of such information, any consideration of internships must necessarily be one-sided, since the only criteria of their value which can be applied are the rules formulated by the Council, which necessarily define the minimum requirements for approval rather than the imponderable values without which wealth of material and equipment are but sounding brass and tinkling cymbals. Mere numbers of patients in a hospital do not insure that an internship there will best fit a man for practice, nor can it be said that length or type of service are determining qualities, or that adequate laboratory facilities train an intern to appreciate properly the place and value of laboratory aids in the care of the sick. The fundamental quality which makes any internship valuable must be sought in the character and purpose of the hospital's staff and trustees, and consists of an eagerness to equip their juniors with practical training and possibly impractical ideals which shall enable them to maintain and improve the traditions of the profession. Without this spirit, the physical characteristics of a hospital are of little significance.

Since, however, physical characteristics are the only ones which can be accurately measured at present, some help for prospective interns and for the hospitals themselves may be derived from a consideration of this side of the problem. In what type of hospital can a recent graduate in medicine obtain the best training for the kind of work he intends to pursue? How much time can he give to this kind of postgraduate education without encountering sharply diminishing returns? What ratio of beds to interns will give him the widest possible experience and at the same time afford opportunity and energy for adequate study of the material furnished? Does the "straight" service, limited to a single field; the "rotating" service, which includes successive periods in medicine, surgery, pediatrics, obstetrics, the clinical and x-ray laboratories; or the "mixed" service, in which he may work in more than one field at the same time; offer the best training for him? Tentative answers to these and other related questions can be attempted on the basis of an analysis of the reports on hospitals approved for internships in Massachusetts.

Of the thirty-five approved hospitals in the state, five may be designated general "teaching hospitals" in the literal sense, since their staffs are partially or completely composed of men who hold teaching positions in medical schools, and the patients are used for teaching purposes. Four of these five offer "straight" services varying in length between twelve and twenty-four months. Only one "teaching" hospital offers a rotating service, of twelve months' duration. There are twenty-eight general "non-teaching" hospitals, meaning hospitals in which no formal undergraduate instruction is carried on. In eighteen, the service is the rotating type, in the rest, "mixed". There are two hospitals for patients with chronic disease, in which a little undergraduate teaching is done, both offering rotating services of twelve months' duration. Of the twenty-eight non-teaching general hospitals only three offer services longer than twelve months, and in one the longer term is optional. There would seem to be little danger that the intern services are too long in Massachusetts. The only question to be considered is whether the rotating services are quite long enough.

There has in the past been much argument concerning the relative merits of the various types of internship, one group maintaining that the "straight" service gives a thorough training in one field of practice, and that no man can adequately carry on more than that, while another maintains just as stoutly, and probably with equal right, that the rotating service gives a better knowledge of the interrelation of the various fields of medicine and that even to-day the majority of physicians cannot restrict their practice to a single field. It would seem obvious that for the man who intends to restrict his practice to internal medicine or general surgery the straight type of service offers the most complete training, while for the future "general practitioner" the rotating service offers more suitable experience, and for the "regional specialist" either a rotating or a mixed service which embraces at least medicine, surgery and pediatrics furnishes the best antidote for the narrowing influence that such restriction exerts. That a teaching hospital is as a rule more stimulating to the intern than one

in which no formal instruction is attempted may be accepted as generally true, since he is present at many of the teaching exercises, and absorbs much from them. Not all great teachers, however, are collected in the "teaching hospitals". The choice between "straight", "rotating" and "mixed" service would, therefore, seem to rest preponderantly upon the type of practice to which the individual intern intends to devote himself. As regards the optimum length of internship, the limiting considerations would seem to be the pressure of necessity, and the question of diminishing returns. The first consideration is always a personal one with each intern, the answer to the second depends somewhat upon the type of service, and somewhat upon the variety of material offered by the hospital in question. Obviously a mixed or rotating service might well be longer than the straight type, since even so the time spent in any one field would be much shorter in the former than in the latter. It is the opinion of the Council of the American Medical Association that twelve months is the minimum acceptable term of service, but no maximum term is mentioned in their report. It is conceivable that if twelve months is a satisfactory minimum, a term of more than eighteen months, especially in a straight service, might operate under the law of diminishing returns and might tend to "hospitalize" the intern, to his everlasting detriment as a practitioner.

Perhaps the most important question which can be partially answered in this survey is that concerning the optimum ratio of interns to beds and yearly admissions in any given hospital. These two factors determine the adequacy of material for study, and the amount of time available for other than barest routine duties; and this latter consideration is fully as important as the former in the proper training of an intern. Thorough study of a moderate amount of material is much more important at that stage of medical education than hasty examination of large numbers of patients, since the former develops a habit which lasts through the years that will supply material in increasing amount, while the latter tends to render one incapable of learning by experience.

A study of the ratio of interns to yearly admissions in the approved hospitals in Massachusetts brings to light a marked difference between the "teaching" and the non-teaching groups. In the former there were 354 yearly admissions per intern during the period studied, in the latter 980 yearly admissions per intern. In the two hospitals for patients with chronic disease, the ratio was 489 patients per intern yearly.

Many contradictory conclusions might be drawn from these figures but the true explanation of the differences probably lies in the greater amount of detailed study of each patient required for teaching and research purposes in the "teaching" institutions. Such work is extremely time consuming, expensive, and yields only a small amount of information immediately applicable to the treatment of the patient upon whom it is carried out. It is, therefore, quite properly not required in non-teaching institutions, with the result that the intern can adequately study and care for a larger number of patients than is possible in a teaching hospital. Therefore, the ratio of three to one between the former and the latter seems proper, when the effort per patient is considered. The only question is whether the interns are overworked in both types of hospitals, and to this question no unbiased answer is available. While they are interns, every man believes they are; after ten years in practice, the same men are sure they were not. No one will deny that it is possible for an ambitious man to do his work adequately and at the same time learn a great deal under present conditions but the question is whether the return is adequate for the energy expended.

A partial answer to this question appears in the analysis of the ratios of interns to beds in the hospitals under consideration. In the entire number the ratio is thirty-four beds per intern, or if the two hospitals for chronic patients are eliminated, twenty-eight beds per intern. In a properly regulated hospital, in which the interns' time is not wasted, this ratio is probably not excessive. Certain conditions not apparent in the figures, however, may make it so. Such conditions are most apt to be encountered in the mixed type of service in which the intern may be constantly interrupted in his work by the conflicting demands of his varied duties and of several members of the visiting staff who may demand his services simultaneously. Only great care and consideration on the part of the staff can prevent such occurrences becoming frequent and harassing, and even they cannot defend the intern from the impossible demands which circumstances sometimes create. These potential interruptions constitute a serious objection to any service in which the intern serves in two or more fields simultaneously and should be considered carefully when contemplating this type of internship. A low ratio of beds to interns is the only apparent solution of the problem at present.

Returning to a consideration of the general problem of the ideal number of beds per intern, it appears that the average in the "teaching" group is just under nineteen beds per intern, while in the "non-teaching" hospitals it is just over fifty-one per intern. The maximum ratio in the teaching group is twenty-four to one, the minimum is nine to one. This minimum seems almost too small for proper intern training, the object of which, according to the Council's report, is "to round out the medical graduate's

training so as to enable him to enter into the general practice of medicine, and not to equip him to enter directly on any specialty." One can hardly visualize the demands of nine patients which would be sufficient profitably to occupy along those lines an intern's entire time.

In the non-teaching group the maximum number of beds per intern is 108, an impossibly large number for one man except perhaps in a hospital for patients with chronic disease. There is no adequate reason for this high ratio of beds to interns. The latter usually receive no salaries and their number adds but little to a hospital's expense, and there would seem to be more than enough well-trained graduates to fill the demands for interns in Massachusetts. Service in a hospital with an impossibly high bed-intern ratio offers the intern no adequate return for his services, and tends to develop slipshod methods and the dangerous habit of making "snap" diagnoses. Any hospital with a ratio of over seventy-five beds per intern can hardly expect or intend to make adequate educational return for the services they render. It is perhaps significant that all the hospitals in our list having a bed intern ratio above that figure pay their interns salaries, a custom which obtains in few others in Massachusetts.

At the other end of the scale in the "non-teaching" group stands the bed-intern ratio of seventeen to one. This would seem to be almost too low for the intern's best interests, but if the visiting staff is mindful of its responsibilities, is probably adequate. Certainly that ratio is far more desirable than the maximum cited above.

Thus far the questions to which tentative answers have been suggested have concerned principally time and material in the form of patients available for study under different hospital systems. Equally important, however, is the development of a proper method of study, which only becomes possible if adequate laboratory facilities and systematic instruction in their application and value, are available to the intern. Herein lies the most glaring weakness of the "non-teaching" group of hospitals. Of seventeen hospitals in this group concerning which a definite statement is available, only three have a full time laboratory director, nine have part time directors, in two the direction is described as nominal, in one as "half time," and in two there is no director at all. In several the routine laboratory work is done by technicians, and the interns are required to do only emergency work.

Under any of the systems enumerated except that involving a full time director, the temptation to shirk laboratory work is almost overwhelming. The recent medical graduate is "fed up" on laboratory work and thirsts for patients and contact with them. Certainly there is little excitement to be found in the performance of most routine laboratory tests, especially when they relate not to one's own patient but to an impersonal "case" that one has never seen and probably never will see. And if the visiting staff apparently succeeds in caring for their patients without recourse to somewhat tedious routine, any but the most conscientious intern soon learns to persuade himself that "a white count probably wouldn't tell us anything" or that there is no necessity for examining the urine. Once established, this habit becomes fixed to the detriment of future patients. The failure of many general practitioners to make the correct diagnosis in many cases lies not in their inability to interpret clinical signs correctly, but in their failure to do a few simple laboratory tests which would serve to direct their attention to possibilities which, without them, do not enter their minds. It is, therefore, of the utmost importance that every intern should acquire the ineradicable habit of checking his subjective impressions by the objective facts available through laboratory methods. This habit will be acquired only under the tutelage of one who has the conviction that laboratory work is essential to proper medical practice, and the time to inoculate lukewarm pupils with that conviction. With rare exceptions, such a combination is encountered only in laboratories to which the director gives his full time and enthusiasm, and every hospital employing interns should have such a director. If the clinical material is sufficient for the intern's needs, the laboratory material should be adequate for a full time director's.

An analogous though less pressing situation exists in the departments of radiology in the hospitals concerning which definite information is at hand. In only five are there full time directors. Such instruction as the intern gets he must pick up as best he can, and it usually consists in reading a report of the x-ray findings, rather than study of the films and instruction in interpreting roentgenograms.

Radiology is a specialized procedure and is not essential to the diagnosis as often as are the more humble laboratory tests, but every intern should learn by experience rather than by word of mouth to know the circumstances in which its possibilities justify its expense to the patient or the hospital. He should also learn enough of the difficulties inherent in the interpretation of roentgenograms to give him a proper sense of their value when he is piecing together the evidence concerning an individual patient. To acquire even this minimum learning he must have the opportunty to see the roentgenograms of patients under his care and discuss with a qualified roentgenologist the correlation and discrepancies between the x-ray and clinical evidence.

Manifestly an intern will not get this type of instruction in a hospital in which the roentgenol-

ogist spends only time enough to read the films and dictate his opinions before hurrying to another institution or back to his own office. While the roentgenological demands of some of the smaller hospitals may not require the entire time of a director of that service, any part time plan should insure that he give more than enough time to meet the minimum diagnostic requirements since only thus can proper instruction of interns be assured.

And finally, if an intern is to receive proper return for his labor the hospital in which he works must in some way provide him access to an adequate reference library. This does not mean an enormous collection of books, but it does mean that a reasonable number of recent standard works be available for reference work, and that the better medical periodicals also be available. In the majority of Massachusetts hospitals outside Greater Boston these conditions are not satisfied. The books on the shelves are outdated and the medical magazines few. Such conditions wean the intern from the valuable habit of keeping in touch with medical literature, so that after graduation his knowledge tends to fall farther and farther behind medical progress.

It is not the purpose of this paper simply to point out the existing defects in the instruction of interns in the hospitals of Massachusetts. Criticism of certain conditions has been offered as affording a basis for planning further improvement, for it must be stated in all fairness that in practically any approved hospital in the state a recent medical graduate can spend a year profitably if he is energetic and interested. What can be done to still further improve the value of the internship to both hospital and intern?

In order to answer this question, further data are necessary, the collection of which involves the coöperation of all who are vitally concerned in medical education: the medical schools supplying interns, the hospitals employing interns, and last but not least recent interns themselves.

Medical schools should form a committee to advise prospective candidates for internship concerning the hospitals in which they are most certain of getting instruction and experience which will best fit their needs. In order to give such advice, the committee would have to be in possession of facts obtainable only through the coöperation of the hospitals and their recent interns. From the hospitals the committee should obtain information in regard to the various qualifications considered essential for approval by the Council of the American Medical Association. From each intern, on completion of his service, it should obtain opinion of the value of that service, embodying specific suggestions for its improvement. Suggestions which the committee considered valuable could be forwarded to the superintendent or trustees of the hospital in question to be acted upon by them. After all, the interests involved are not conflicting but mutual.

There is at present no adequate organization for the solution of these problems and the need for such an organization is perhaps the most important fact which this study has served to emphasize. It also indicates what the composition and functions of such an organization should be. Manifestly, medical schools, hospitals and the Massachusetts Medical Society, as well as the interns themselves, are concerned in improving the value of intern services in Massachusetts. Therefore, all of these bodies should participate, by representation, in assembling and studying the necessary data which should include not only the usual statistics concerning beds, books, admissions and autopsies, but also statements from all interns, on completion of their services, regarding the value of the service from their point of view and embodying suggestions for improvements. Such a study would benefit not only the interns but medical schools, hospitals, and the community as well.

A BAFFLING CASE OF PULMONARY CARCINOMATOSIS*

BY JOSEPH C. EDWARDS, M.D.†

SINCE pulmonary aspergillosis was first described in 1842[1] there has been much discussion as to whether the infection is primary or secondary to other lung conditions such as tuberculosis, abscess, bronchiectasis, etc. In the literature there have been many reports of primary aspergillosis both in man and animal[9]. It is said to occur in pigeons as a primary pulmonary type[2]. In man, some believe the condition to be primary even in the presence of tuberculosis and such writers reason, that since the fungus is so universally present, if the aspergillosis infection be secondary, it should be found more frequently in association with tuberculosis. In the literature, only one instance was found associating aspergillosis with carcinoma of the lung[3]. As the authors reporting the case stated that no specific reference in the literature could

*The Massachusetts Medical Society has provided for the award of a prize of fifty dollars each year for the best written and most comprehensive case report submitted by an intern holding a rotating internship in a Massachusetts Hospital which is approved for intern training by the American Medical Association.

This essay was awarded the prize for 1935.

The illustrations were not a part of the material submitted for the award.

†Edwards, Joseph C.—Intern, Springfield Hospital, Springfield, Mass. For record and address of author see "This Week's Issue," page 33.

be found of aspergillosis infection secondary to pulmonary carcinoma, it therefore seems warranted that the following case should be reported.

A report of this case may also serve to direct attention to the importance of a more careful consideration of possible primary conditions when obscured by predominating physical signs, clinical symptoms, x-ray and laboratory findings.

CASE REPORT

A thirty year old white married American housewife was admitted to Springfield Hospital Oct. 28, 1934 with a complaint of cough, dyspnea and weakness over a period of three months. The onset had not been acute and there had been no chills or night sweats.

The patient stated that she had not lost weight, but the physician in charge said that the patient's usual weight had been 125 pounds but in September had dropped to 107, a loss of 18 pounds in three months, which loss was attributed to restricted diet, prescribed for relief of vague gastrointestinal symptoms.

Her history previous to admission to Springfield Hospital was briefly as follows:

April, 1933. Roentgenogram of chest was negative.

April, 1934. Complained of gastrointestinal symptoms of obscure nature. Gastrointestinal series interpreted as negative.

Aug. 30, 1934. Roentgenogram of patient's chest was reported as showing evidence of miliary tuberculosis, while another film taken at this time and interpreted by another radiologist was diagnosed as pulmonary tuberculosis, but not of the miliary type. Von Pirquet test was negative at this time and sputum failed to show acid fast bacilli.

Sept. 9, 1934. Sputum examination showed tubercle bacilli not found; mold present; penicillium glaucum; culture showed mixture of Staphylococcus and a spreader which made definite identification impossible.

Sept. 24, 1934. Sputum again negative to tuberculosis. Mold present; aspergillus.

Sept. 27, 1934. Tuberculosis not found. Mold present but too young to identify. It has the appearance, however, of aspergillus. Curschmann's spirals were present. Blood examination at this time: red cells 5,460,000, Hg. 75 per cent, white cells 17,000—small mononuclears 16 per cent—large mononuclears 1.5—transitionals 4.5—myelocytes 0—polys 75 per cent and eosinophiles 3 per cent with no normoblasts or megaloblasts.

Sept. 30, 1934. Roentgenogram of chest reported as follows: "From all appearances there seems to be slightly more involvement than there was in plate taken August 30th." A definite opinion was not given, but it was felt that malignancy could not be ruled out and that neither tuberculosis nor fungus infection could be disregarded.

Oct. 7, 1934. The patient was becoming steadily worse. Coughing spells were numerous and exhausting.

Oct. 14, 1934. Examination by a consulting physician showed "nothing but chest signs"; no nodules could be palpated in the breasts and examination of heart and abdomen was negative.

Oct. 23, 1934. Sputum was examined using 40 per cent potassium hydroxide, staining for 30 minutes, and aspergillus was found.

Oct. 28, 1934. Admitted to the Springfield Hospital, Springfield, Mass. The cough, general condition and particularly the dyspnea had become progressively worse, the relief of which necessitated almost continuous confinement to the oxygen tent.

Physical examination revealed a very weak, cyanotic female, poorly nourished and looking very ill. There was great difficulty in raising a frothy white and occasionally blood-streaked sputum, containing no yellow particles or pus. The pulse was regular. The heart was normal in size and its sounds normal. There was a slight impairment of resonance over the entire chest, while diminished breath sounds were evident throughout the chest, particularly at the bases which appeared equally involved. Râles were few in number, rather crepitant in quality. Because of the extreme distress from dyspnea on slightest exertion, the patient was too ill to attempt thorough examination. Palpation of the abdomen showed slight distress in the region of the liver and epigastrium but no masses were to be felt. The temperature was 100° F.—pulse 110, with respirations 48 to the minute. There were frequent paroxysms of coughing accompanied by labored respirations and extreme dyspnea. Examination of urine showed S. P. T. albumen, 2 to 4 white cells per high power field with occasional epithelial cells. The blood showed: Red cells 3,950,000; Hg. 70 per cent; W. B. C. 22,400; Polys. 81; Lymph 10; Myelos. 5 and Eosinophiles 4. Platelets were distributed normally. Smear showed achromia. Sputum negative to aspergillus eight days before death. (Inhalations of ethyl iodide were administered before entry.)

Nov. 4, 1934. Roentgenogram—firm mottling scattered throughout entire lung fields. Mottling has increased in density since previous pictures.

BRONCHOSCOPY

Nov. 5, 1934. The mucous membranes throughout the pharynx and hypopharynx are dry, red and inflamed but thickening of these membranes is not apparent. The arytenoids are slightly thickened but show normal motility. The posterior commissure is normal and no granulations are present. The cords appear slightly thickened and quite red but are normally motile and approximate closely. The lateral walls of the larynx are slightly thickened and dark red, due to inflammatory reaction and to cyanosis. The tracheal rings are distinct but do not stand out as white as in the normal and the trachea throughout has a dark, dusky-red appearance. The trachea is noticeably deviated, to the right at its middle third, but shows no evidence of compression.

The carinal crest is but very little thickened and is quite normal in contour, excepting at its base where it is somewhat broadened. It shows no degree of fixation on inspiration or expiration. The right main bronchus appears dark red and quite cyanosed but its membrane appears but slightly thickened. The branch divisions of the lower lobes, right and left, are not thickened and although deeply red, appear quite normal in contour. Secretion is practically absent although several thick, gelatinous plaques were aspirated. The left main bronchial wall appears to be uniformly smeared with a thin translucent membrane which gave a definitely lighter appearance than that seen in the right bronchus. Because of the patient's serious condition, time was not spent

to examine the upper lobe orifices. As a therapeutic measure 6 cc. of lipiodol was installed deeply into the right bronchial tree and 9 cc. into the left. Oxygen was administered throughout the examination. Ten per cent cocaine was used in the hypopharynx and 20 per cent applied to carina and secondary branch divisions. Considering the patient's preoperative condition, she reacted well to bronchoscopy.

Six days later the patient died in marked cyanosis with temperature of 97.6°—pulse 130—respirations 60, a few hours before death.

The essential pathologic findings were as follows: The lungs appeared solid and shrunken throughout with a uniform surface appearance of mottled gray and white with uniformly distributed fine nodules over the entire lung surface. The lungs were not adherent to the chest wall. There were several ounces of free fluid in the thoracic cavity. The lung

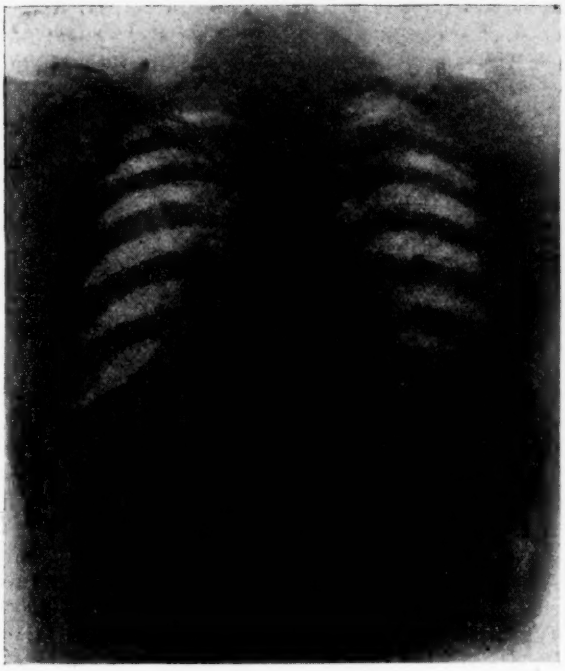


PLATE I. August 30, 1934.

surface was hard and firm to palpation. Gross section revealed numerous areas varying from 1 cm. to 3 cm. in diameter, of whitish color, many of which showed necrotic centers. These areas were uniformly distributed throughout both lungs and in all lobes. The lung tissue seemed almost rubbery to the touch. The bronchi contained a creamy white fluid. There were no ulcerations present. No single large tumor mass was found.

The liver was enlarged, its left lobe filling the greater part of the left upper quadrant. There were four, well-circumscribed white necrotic masses in the liver occupying a depressed position in the surface of the organ, the largest of which was two inches in diameter and about the same in depth. These masses were stellate in appearance at the liver surface. Cultures from these liver masses and from the lungs were negative for fungi, but cultured secretions from the bronchi showed pneumococci, staphylococci and streptococci.

The heart was normal in appearance. The intestines, stomach, kidneys and adnexa were normal to gross appearance. One pathologist reported that from the microscopic appearance of the pulmonary tissue the tumor could well be primary carcinoma of the lung, while another thought the sections characteristic of metastatic carcinoma. The final diagnosis made by Dr. Frederick D. Jones of the Springfield Hospital was that of primary endobronchial carcinoma of the lung with liver metastasis.

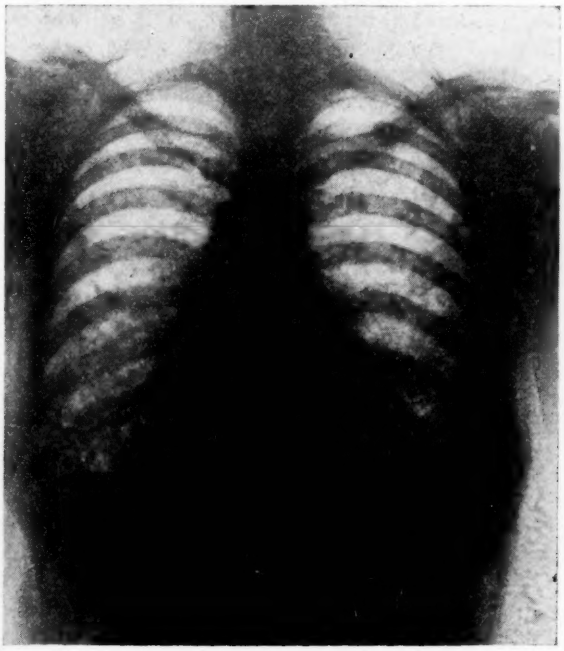


PLATE II. September 30, 1934.

Hamman states that roentgenologically, pneumonomycosis among other things may suggest new growth and that a lesion of the hilum and lower lobes suggests fungi[4]. Aside from the cir-

(Oil immersion.) Drawing of specimen of aspergillus from smear of sputum of patient. It is identical to the specimen obtained on culture, which is more dense and has more branching mycelia with hyphae of short extent which terminate in single rounded ends not unlike conidia.

cumscribed appearance of many bronchiogenic carcinomas of the lung roentgenologically, Rabin and Neuhof say that "the non-circumscribed neoplasms of the smaller bronchi usually present the appearance seen in unresolved pneumonia (at relatively early stages of the growth). Later a lymphangitic carcinosis of both lungs often supervenes. The film then shows the lungs to be

occupied by fine streaks and nodules, and the primary growth may not be recognizable. A carcinomatous involvement of the pleura with pleural effusion may occur early in the disease[5]."

Geschickter and Denison in a report of several cases of carcinoma of the lung divide them into two types: (1) the common bronchial or epidermoid carcinomas, or hilar cancer which is composed of epidermoid cells resembling the lining cells of the larger bronchi, and (2) the lobular or pneumonic cancer, which is a diffusely growing adenocarcinoma apparent in the roentgenogram as multiple nodules infiltrating one or

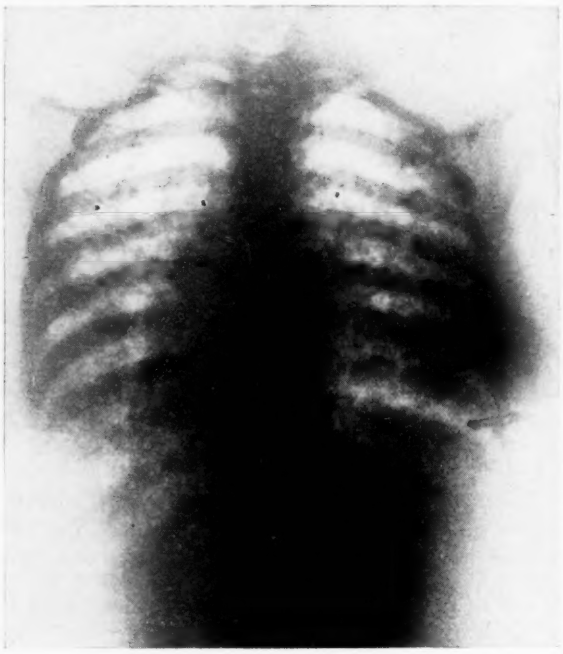


PLATE III. November 4, 1934.

both lungs, usually toward the base[6]. In the latter diffuse type, the authors state that adults under forty-five years of age are often afflicted. Microscopically the tumor has an adenomatous structure resembling the terminal ramifications of the bronchioles and sometimes containing a mucoid secretion. These authors believe that the so-called alveolar carcinoma is not an established form, and its existence has never been conclusively demonstrated.

The above-named authors reported several cases of pulmonary carcinoma, the youngest being twenty-two years of age and the oldest sixty-five years. A roentgenogram of the twenty-two year old patient showed tumor diffusely infiltrating both lungs, after the manner of miliary tuberculosis, with shadows more dense at the bases and in the region of the right lower bronchus. This young patient had had fever, cough, night sweats, and dyspnea of three weeks' duration, and had lost 11 pounds. The clinical impression of this case was miliary tuberculosis. A similar case has been described by Hamman[7]. In the same article Geschickter and Denison reported another case in which the roentgenogram of an adenocuboidal cancer produced the picture of a miliary tuberculosis.

In cases of uncomplicated aspergillosis, Emerson states that roentgenograms of the lung show an absence of calcified lymph nodes at the hilum and the apices may be free from disease. At the hilum of one or both lungs a dense shadow radiates in coarse lines, usually to one lobe, and radiates peripherally into a diffuse infiltration[8]. He further states that the infection may present a snowflake appearance, such as is seen in pneumoconiosis, the physical signs being those of bronchitis with later signs of infiltration, such as occurs in tuberculosis. The differential diagnosis of aspergillosis, tuberculosis and cancer of the lung may under certain circumstances be exceedingly difficult.

SUMMARY

A case of primary pulmonary carcinoma in association with sputum containing aspergillus is reported. It is believed that the fungus was pathogenic, was secondary to the carcinoma and that its effect on the patient, clinically at least, was deleterious. In differential diagnosis, aspergillosis, pulmonary carcinoma, and tuberculosis were considered, and during a period of several months, all these diagnoses were made with reservations by different physicians who had occasion to examine the patient. The absence of abdominal signs and symptoms, the persistent presence of aspergillus in the sputum and the absence of tubercle bacilli, together with roentgenological and bronchoscopic findings in the chest, suggested that the most reasonable diagnosis was that of pulmonary aspergillosis. Postmortem examination revealed as essential cause of the illness primary endobronchial carcinoma with liver metastases.

The author is indebted to Dr. A. D. Rood for the illustrations and the report of the bronchoscopic findings.

REFERENCES

1. Osler, William, and McCrae, Thomas: The Principles and Practice of Medicine. Eleventh Edition. Philadelphia: W. B. Saunders Company. P. 237, 1931.
2. Jordan, E. O.: A Text-Book of Bacteriology. Fourth Edition. Philadelphia: W. B. Saunders Company. P. 462, 1915.
   Norris, G. W., and Landis, H. M. R.: Diseases of the Chest. Fourth Edition. Philadelphia: W. B. Saunders Company. P. 457, 1929.
3. Kampmeier, R. H., and Black, H. A.: Pulmonary aspergillosis in association with bronchial carcinoma. Am. Rev. Tubcrc. 30:315 (September) 1934.
4. Hamman, Louis: The clinical manifestations of pneumonomycosis. Am. Rev. Tuberc. 16:575, 1927.
5. Rabin, Coleman B., and Neuhof, H.: A topographic classification of primary cancer of the lung. Its application to the operative indication and treatment. J. Thoracic Surg. 4:147 (December) 1934.
6. Geschickter, Charles F., and Denison, Robert: Primary carcinoma of the lung. Am. J. Cancer, 22:854 (December) 1934
7. Hamman, Louis: The diagnosis of carcinoma of the lung. Am. Rev. Tuberc. 28:711, 1933.
8. Emerson, Charles P.: Penicillium lung infection. Trans. Assoc. Am. Phys. 36:18, 1921.
9. Schneider, L. V.: Primary aspergillosis of the lungs. Am. Rev. Tuberc. 22:267, 1930.

THE EFFECT OF ADMINISTRATION OF VITAMIN C ON THE RETICULOCYTES IN CERTAIN INFECTIOUS DISEASES*

A Preliminary Report

BY JAMES M. FAULKNER, M.D.†

THE effect of administration of large daily doses of vitamin C has been studied in twenty-seven cases of rheumatic fever, eight cases of bone tuberculosis and two cases of Still's disease. In each of the disease groups were included both active and inactive or recovered cases. None of the cases showed any clinical signs suggestive of scurvy. All the patients had been on a diet generally considered to be adequate in vitamin C. It had contained daily for all but three of the rheumatic fever patients either 120 cc. of orange juice or canned tomato juice or some fresh fruit. In the bone tuberculosis and Still's disease group the diet had included at least one-half of an orange daily. The thirty-seven patients varied in age from three to twenty-five years with an average age of 10.6 years. All these patients were given additional vitamin C in the form of 530 cc. of orange juice per day by mouth, or in the pure crystalline form in daily doses of 200-300 mg. by mouth and in two cases intravenously.

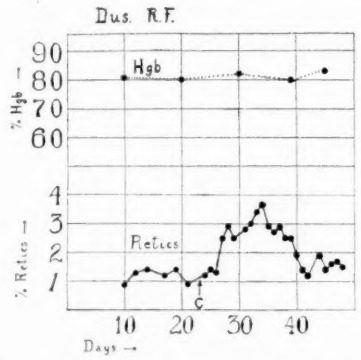
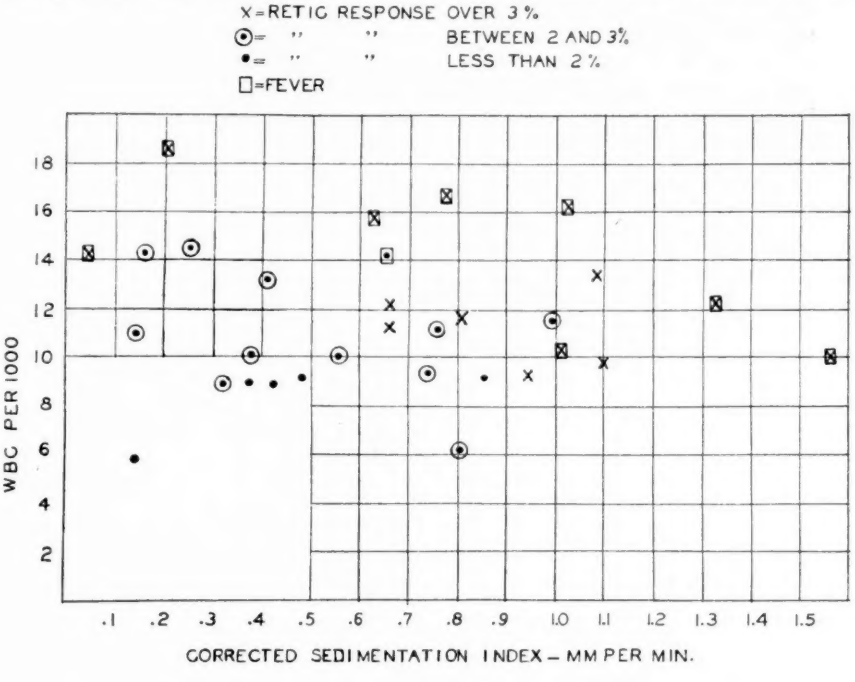


FIG. 1. A typical though small reticulocyte response in rheumatic fever. Beginning at the point marked C, 300 mg. per day of cevitamic acid (Cebione-Merck) was given by mouth and continued throughout the rest of the experiment.

No specific therapeutic effect on the course of the disease was observed during the period of increased vitamin C administration which lasted on the average for four weeks.

In the majority of these cases a response of the reticulocytes followed the large doses of



CORRELATION BETWEEN ACTIVITY OF DISEASE AND RETICULOCYTE RESPONSE

FIG. 2. Chart illustrating the correlation between the cardinal signs of infection and the reticulocyte response. It will be noted that the cases which showed a response of over 3 per cent all showed well-marked signs of infection, the majority of cases which showed no response lie in the normal zone and those which showed a response of between 2 and 3 per cent lie in an intermediate zone.

*From the House of the Good Samaritan, Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) Boston City Hospital, and the Department of Medicine, Harvard Medical School, Boston, Mass.

†Faulkner, James M.—Research Fellow, Thorndike Memorial Laboratory and Junior Visiting Physician, Boston City Hospital. For record and address of author see "This Week's Issue," page 33.

vitamin C analogous to the reaction which follows the administration of vitamin C to patients with the anemia of scurvy[1]. The responses were of small magnitude but the pattern of response, though variable, was orderly. Figure 1 illustrates a typical response of smaller than average magnitude in a case of rheumatic fever. The hemoglobin level was usually above 70 per cent so that the peak of the reticulocyte rise could not be expected to be very great. With lower hemoglobin values there was a slight tendency to higher reticulocyte rises and an increase in the hemoglobin level. Previous administration of large amounts of iron in the form of ferrous sulphate did not prevent the occurrence of the reticulocyte response.

An interesting feature of the reticulocyte response is the fact that it was roughly proportional to the severity of the infection. If the cases are divided into three groups, first, nineteen which showed a rise of 3 per cent or over (average 4.5 per cent); secondly, eleven which showed a rise of between 2 and 3 per cent, and, thirdly, eight which showed no response, it is found that all of those in the first group showed well-marked signs of active infection as measured by body temperature, leucocyte count and corrected sedimentation index of erythrocytes; those in the third group, as a rule, showed little or no signs of infection, and those in the second group showed an intermediate degree of activity. The relationship of the cardinal signs of infection to the reticulocyte response is illustrated in figure 2. The etiology of the infection was not the controlling factor in conditioning the reticulocyte response.

The failure of large doses of vitamin C to influence the course of rheumatic fever is evidence against the hypothesis of Rinehart[2] that deficiency of this substance is a specific etiological factor in this disease although more numerous and more prolonged observations are required to reach a final conclusion.

The observation that infections predispose to scurvy is well established and has led to the suggestion that under these conditions the metabolic demands for vitamin C may be much increased[3, 4]. Our results suggest that these demands are not met by diets heretofore considered adequate so that in infectious diseases relative vitamin C deficiency commonly develops and may constitute a secondary complication of some importance.

REFERENCES

1. Mettier, S. R., Minot, G. R., and Townsend, W. C.: Scurvy in adults, especially the effect of food rich in Vitamin C on blood formation. J. A. M. A. 95:1089, 1930.
2. Rinehart, J. F., Connor, C. L., and Mettier, S. R.: Further observations on pathologic similarities between experimental scurvy combined with infection and rheumatic fever. J. Exper. Med. 59:97, 1934.
3. Meyer, L. F.: Über Immunität und Ernährung in Kindesalter. Klin. Wchnschr. 4:1481, 1925.
4. Gabbe, E.: Bestimmung von Vitamin C in Blutserum. Klin. Wchnschr. 13:1389, 1934.

ACKNOWLEDGMENT

The author expresses his indebtedness to Professor A. Szent-Györgi and also to Merck & Co. for their generous gifts of cevitamic acid and to the Smith. Kline & French Co. for the ferrous sulphate (Feosol) used in this work.

MEDICAL PROGRESS

PROGRESS IN PEDIATRICS*

BY R. CANNON ELEY, M.D.†

ACUTE ANTERIOR POLIOMYELITIS

As a result of the clinical evidence which has been presented[1, 2, 3] during the past two to three years, the enthusiasm for the administration of convalescent serum as a therapeutic measure in the treatment of the acute or preparalytic stage of anterior poliomyelitis has subsided, and attention is once more being directed toward prevention of the disease.

The development of a vaccine which might be successfully employed as a prophylactic measure in the treatment of poliomyelitis is not new as several attempts have been made in the past[4, 5]. However, with the recent knowledge that favorable results may be obtained with antigens inactivated by germicides in the prevention of other virus diseases, a new impetus has been given to this phase of study. Maurice Brodie[6], working with William H. Park, has developed a vaccine which at the present time seems to be efficacious in the prevention of this disease. By employing a vaccine in which the virus has been inactivated by the use of formaldehyde, Brodie has been able to immunize monkeys against poliomyelitis to direct intracerebral inoculation of the virus. Furthermore, the serum obtained from these monkeys possessed neutralizing substances against the virus of poliomyelitis. After having successfully performed these studies in monkeys, the vaccine was injected into members of the research group and these results were in accord with those obtained with the experimental animals.

In 1926 McKinley and Larson[7], using a vaccine (with sodium ricinoleate as a preservative) that they had prepared from the spinal cords of monkeys killed during the acute phase of the disease, injected four monkeys in an effort to

*From the Department of Pediatrics, Harvard Medical School, the Department of Communicable Diseases, Harvard School of Public Health, and the Infants' and Children's Hospitals, Boston.

†Eley, R. Cannon—Instructor in Pediatrics and Communicable Diseases, Harvard Medical School and School of Public Health. For record and address of author see "This Week's Issue," page 33.

establish immunity. Three of these animals failed to develop poliomyelitis when subsequently inoculated with the virus. The fourth monkey developed a slow or delayed form of the disease. All of the control animals died from acute poliomyelitis. The authors concluded that complete immunization had been obtained in three and partial immunization in the fourth monkey. At the same time they pointed out the fact that they had been unable to produce the disease in more than 70 to 75 per cent of the inoculations. However this work suggested the possibility that a suitable vaccine might be prepared as a prophylactic procedure in man. Kolmer[8] in 1934 successfully immunized a group of Macacus rhesus monkeys against acute anterior poliomyelitis by subcutaneous and intracutaneous injections of a vaccine prepared from the spinal cords of infected monkeys and treated with sodium ricinoleate. This preservative, in the amount employed, does not completely kill the virus, yet none of the vaccinated animals showed the slightest evidence of the disease either during or following the process of immunization which consisted of intracutaneous and intradermal injections of small amounts of the vaccine at definite intervals of time. In view of these observations Kolmer suggested that if three subcutaneous injections of this vaccine were given at intervals of five to seven days, and in amounts of from 0.05 cc. to 0.1 cc. per kg. of body weight, immunity to acute anterior poliomyelitis might be effectively established in man.

Recently Kolmer[9] has published the results of this form of prophylaxis in twenty-five patients whose ages ranged from eight months to fifteen years. In each instance the presence of protective antibodies in the blood was determined by serum neutralization tests prior to the injection of the vaccine. In order to determine the effectiveness of the vaccine on both immune and non-immune individuals this group of twenty-five children included fifteen whose blood failed to show any evidence of the presence of antibodies, and ten who did show the presence of antibodies. Each patient received from one to three subcutaneous injections of varying amounts of the vaccine at weekly intervals. None of the children vaccinated showed any evidence of infection, and in only one instance was there a moderately severe local reaction. Febrile reactions, which were more commonly encountered after the first injection, were slight and usually subsided after twenty-four hours.

Serum neutralization tests were performed one week after the last injection of the vaccine and 75 per cent, i.e. eleven, of the fifteen children who prior to injection did not show any antibody formation now showed sufficient amounts to neutralize the virus. Similar tests performed with the blood serum of the ten children who did show the presence of antibodies against poliomyelitis prior to the injection showed an increase in antibody. In view of the rapid antibody formation the suggestion is made that the vaccine cannot only be administered as a means of establishing immunity during normal periods, but that during epidemics it would be particularly valuable as an immunity is rapidly established. In the final conclusions contained in their summary the authors state; "It is believed that the vaccine is now ready for vaccination of human beings and especially children against poliomyelitis and particularly during epidemics."

Although the experimental and clinical evidence as to the value of this vaccine in establishing immunity to acute anterior poliomyelitis as presented by Kolmer and his co-workers is of a most encouraging nature, yet time, further investigations and corroboration of these observations are prerequisites to the acceptance of this procedure. As regrettable incidences[10, 11] have already occurred in the establishment of immunity against certain diseases we cannot be too cautious—utmost care must be exercised by those who continue this study. Experience has shown that there is an individual susceptibility to vaccines and that many as yet unknown factors may play important rôles when a vaccine is injected into a human being. If the virus, even though attenuated, is still present in the vaccine five months after its preparation is it not possible that the preservative may lose some of its attenuating properties, thereby increasing the potency of the virus? (It is recognized that sodium ricinoleate when used as a detoxifying agent with scarlet fever and diphtheria toxin, will under certain conditions lose its detoxifying value.) Theoretically the antibody formation should be sufficient to exert a controlling influence over the presence of the virus in the body but what effect will other diseases have upon this antiviral antibody protection? Furthermore it is believed by many that certain conditions may activate a previously dormant neurotrophic virus. These questions and many others must be satisfactorily answered before the virus of acute anterior poliomyelitis, even though attenuated, should be administered to human beings unreservedly.

CHRONIC PYURIA

A few years ago Helmholz noted that a specimen of urine obtained from an epileptic patient who was being treated by the ketogenic diet did not show the same tendency for bacterial growth as did specimens obtained from individuals who were receiving a regular diet. As a result of this observation bacteriological studies were instituted which showed that such urines not only inhibited the growth of the colon-typhoid

group of organisms but that in many instances they actually possessed bactericidal properties. This effect, however, was less marked for the streptococcus and staphylococcus than for the colon bacillus. In view of these findings it seemed reasonable to apply this form of therapy, i.e., the ketogenic diet, in the treatment of individuals suffering from persistent pyuria, and particularly in that group in which the causative organism was recognized as the colon bacillus. The beneficial effect of this procedure was so marked that Clark[12] reported the successful treatment of two adults and Helmholz[13] reported similar results in two children who were suffering from an infection superimposed upon congenital anomalies of the urinary tract. During the following two years (1932-1933) the literature contained many case reports supporting the value of this form of therapy.

Further investigations have shown that the bactericidal power of the urine is not due to the presence of either acetone or diacetic acid but that it is directly proportional to the amount of beta-oxybutyric acid[14] present in the specimen. Fuller[14] has also shown that the effectiveness of this acid depends on the acidity of the urine and that it is only effective at a pH of 5.5 or less.

During the past year the reports in the literature have been so encouraging that it would appear that the ketogenic diet is of unquestionable value not only in the treatment of chronic pyuria in children but also in adults. Clark[15, 16], Gainsborough[17], Helmholz[18] and others have directed attention to its value in the treatment of adults while Rector and Wheeler[19], and Summerfeldt and Brown[20] have reported equally as good results in the treatment of children. Rector and Wheeler instituted the ketogenic diet in fourteen patients who had failed to show any improvement when subjected to the usual forms of therapy, and of this group the urine became sterile in twelve cases. In two of the fourteen patients the authors were unable to produce a state of ketosis and it is interesting to note that both of the children showed anatomic deformities of the urinary tract. Summerfeldt and Brown studied forty children with persistent pyuria and reported successful results in those patients in whom no anatomic abnormality was present. This is rather an important point for it would appear that satisfactory treatment does not usually occur if there is some abnormality of the urinary tract. For this reason the authors stress the importance of a thorough examination including pyelograms, renal function tests, and in certain instances cystoscopic examinations before the institution of the dietary régime. The prerequisites for successful treatment depend upon: (1) the selection of suitable patients, (2) the rapid production of ketosis, (3) a strongly acid urine (pH 5.5 or less) and strict adherence to the diet which, however, does not have to be maintained for a long period of time.

WHOOPING COUGH VACCINE

The recent observations of Leslie and Gardner[21], and Sauer[22] and his associates have not only reawakened interest in the prophylactic vaccination against whooping cough, but have also offered an explanation for the conflicting reports as to the value of vaccines in the treatment of this disease. This form of therapy is not new as it was first employed over twenty years ago[23] and since that time there has developed a rather voluminous amount of literature which is full of conflicting reports as to the value of the procedure in both prevention and treatment of the disease. Not infrequently the same observers have reported both success and failure in the prophylactic use of vaccines prepared in identical manner.

The aforenamed studies have confirmed the earlier observations of Bordet and Sleeswyk[24], i.e., that recently isolated strains of the Bacillus Pertussis differ serologically from old and stock cultures grown without blood in the medium. Furthermore, they have shown that hemolysis is more pronounced in recently isolated strains than in strains under prolonged artificial cultivation and, of probable significance, that the antigenic power of the organism appears to be high on first isolation but fails with prolonged repeated growth on artificial media, unless blood (and preferably human blood) is present in certain proportions. In fact Sauer[25] states that the recently isolated strains of Bordet-Gengou bacilli should be grown *only* on Bordet medium made with twenty per cent fresh, defibrinated human blood.

In view of these previously unrecognized facts an explanation for the failure of some vaccines and the success of other vaccines that have been employed in the past is offered. The vaccine employed by Bokay[26] was quite successful when used as a prophylactic measure in an institutional outbreak of the disease, but when confirmation of these studies was undertaken on a large scale the results were not so promising. Madsen[27, 28, 29], who had the opportunity to study two epidemics of whooping cough in the Faroe Islands, concluded after the 1923-1924 epidemic that: "Vaccination had no effect once the disease had broken out; it should be used, however, to the widest possible extent as soon as the epidemic threatens. No absolutely sure prophylactic effect has been obtained, but the infection is lightened." In the second, or 1929 epidemic, 1832 individuals received the vaccine as soon as the epidemic threatened. The fatality rate was thirty times as great in the unvaccinated as in the vaccinated group of patients. Madsen was of the opinion that the explanation for this marked difference lay in the fact that the vaccine was prepared from fresh, young strains of the organism, and that large doses were given.

In 1933 Sauer[22] reported the results of pro

phylactic vaccine therapy in 394 selected non-immune individuals and offered evidence which strongly indicates that pertussis vaccine, when made from recently isolated, strongly hemolytic strains, grown on Bordet medium made with freshly defibrinated human blood, and given in adequate dosage at least four months before exposure, will produce effective immunization against the disease. To quote: "In the course of five years the thirty-one control children in twenty-four of the families contracted unquestionable whooping cough. Twenty-nine of the injected children were exposed throughout the incubation, catarrhal, and paroxysmal stages, but none contracted the disease. Not one of 162 injected children accidentally exposed has had a cough that in any way resembled pertussis. Active immunity is completed in four months and lasts for years." In a later publication Sauer[30] is careful to point that, "no claims are made for it as a therapeutic agent, nor when exposure has already occurred, or threatens".

In view of this last statement it is of interest to call attention to a new type of pertussis vaccine that has been developed by Krueger[31] and his associates. This vaccine, known as Hemophilus Pertussis Endoantigen, is a filtrate of the crushed bacterial bodies of the pertussis organism and therefore a more rapid absorption and immunization might be expected by the injection of this bacterial free preparation. The rapid absorption of this vaccine not only offers the possibility of treating an individual who has recently been exposed to the disease, but also the possibility of instituting treatment during the catarrhal period of the infection. Frawley et al[32, 33] have presented clinical evidence which would indicate that the antigen is of both therapeutic and prophylactic value. Among one group of twenty-one children who were treated during the course of the disease 76 per cent had mild attacks; in another group of 165 cases, 86 of whom had the antigen within one week after the onset, 59 per cent had mild, 19 per cent moderate, and 12 per cent severe attacks. In a large group of 614 children who were vaccinated as a prophylactic measure 12 per cent of the vaccinated group and 10 per cent of an unvaccinated group developed whooping cough but 62 per cent of the *vaccinated group* had mild attacks in comparison with 12 per cent of the unvaccinated group who had mild attacks. Munns and Aldrich[34] have recently employed Krueger's endoantigen in the treatment of 122 cases and exposures during an epidemic in Winnetka, Illinois, and from their observations have concluded "... that the majority of children who receive the antigen will have mild attacks of pertussis. Although the prophylactic effect is more uncertain, the antigen apparently has the definite effect of modifying and shortening a majority of pertussis infections. This fact is particularly true when the antigen is given early in the attack or before onset of the cough."

If one were to judge from the clinical data that have been accumulated, it would appear that the employment of pertussis vaccine as a prophylactic measure is probably justified. However, when one considers the marked variability in the severity of whooping cough in individual cases the effectiveness of the administration of a vaccine as an active prophylactic measure is still open to question.

PROGRESSIVE PSEUDOHYPERTROPHIC MUSCULAR DYSTROPHY

In view of the number of case reports in the literature concerning beneficial symptomatic treatment, a brief review of this condition is of interest.

Although Duchenne[35] is usually considered as having published the first description of this disease in 1849, he was actually antedated by Semmula in 1834 and Costa and Gioga in 1836. During the following twenty years, the primary myopathies were gradually differentiated from the atrophies of nervous origin. The former group has been further subdivided according to the anatomic distribution of involvement so that at the present time five types of this disease are recognized.

The etiology continues to be poorly understood, and, as one might expect, numerous factors have at one time or another been considered. Goldstein[36] has suggested that it might be the result of some endocrine disorder with particular reference to the pineal body; Barker[37] has demonstrated definite physical and metabolic evidences of endocrine dysfunction; Landé[38] has reported a case associated with dystrophia adiposogenitalis; Janney, Goodhart and Isaacson[39] have found changes indicative of general endocrinologic disturbances such as dry brittle hair, pigmentation of the skin, acromegalic features, trophic changes in the nails, and unusual distribution of subcutaneous fat. Kuré and Okinaka[40] have concluded that the disease is the result of an alteration in the autonomic innervation of the muscles and on the basis of their experimental work have devised their form of treatment. Syphilis, as well as other diseases of the central nervous system, has been found associated with this disease, but there is no evidence to support the view that the condition is the result of any of these disturbances. Heredity unquestionably plays an important part, and it is not unusual to see two or more members of the same family affected. This is particularly true in regard to brothers. A study of a family in a secluded Swiss village where accurate records for three hundred years were available has shown that the hereditary features, according to the mendelian theory, are of the recessive mode.

Aring and Cobb[41] have recently published a careful study entitled "Muscular Atrophies and Allied Disorders." In this study efforts have been made to divide the various muscular disturbances into an idiopathic or "Primary" group where the etiology is unknown while those due to known etiological factors are classified as "Secondary." On this basis they have collected three groups of "Primary" atrophies, i.e., sporadic diseases, hereditary myopathies in which the lesions are practically entirely in the muscles themselves, and an hereditary group in which the pathology is largely in the spinal cord. The importance of such a classification and division of the myopathies becomes evident when one realizes that the form of therapy employed in the treatment of those disturbances which are secondary to metabolic dysfunctions are different from those instituted in the group in which the disturbances are secondary to pathology of the nervous system. A careful study of this publication is advocated for those who are interested in this subject.

More recently attention has been directed toward the creatine and glycogen disturbances in these diseases, as abnormalities in the metabolism of both of these substances have been repeatedly demonstrated. McCrudden and Sargent[42] pointed out the low blood sugar content present in their patient and attempted to explain the muscular weakness by the low glycogen content of the muscles. Milhorat, Techner and Thomas[43] have shown that these patients have a creatinuria even on a creatine-free diet and excrete creatine almost quantitatively. This is a complete reversal from that which occurs in the normal individual. Similar observations have been made by Magee[44, 45] and by Levene and Kristeller[46].

Treatment in the past has been both discouraging and futile. Recently, however, encouraging reports have appeared in the literature and at the present time two methods of therapy have been offered.

Based on their experimental evidence Kuré and Okinaka[40] in 1930 suggested that these patients should be treated with pilocarpine and adrenalin. The authors treated twelve patients in this manner and were able to obtain improvement in six, "functionally" complete cure in two, but no improvement in the others which, however, were far advanced cases. Hough[47] in 1931, treated sixteen patients with this method and obtained improvement in every case although several of them were quite advanced. Of this group eight showed slight improvement; four moderate improvement; and four showed marked improvement; in one case that was comparatively early "a symptomatic and functional recovery" was obtained. Both authors are careful to point out that this form of therapy is *not* a cure, that relief is only temporary, and that the treatments have to be repeated at regular intervals. In a second communication in 1933 Hough[48] states that the procedure "is of sufficient value to justify its continued use in this disease."

The second therapeutic procedure was offered by Milhorat, Techner and Thomas[43] in 1932 and is based on the effect of glycine administration upon creatine metabolism. These authors treated three patients suffering from progressive pseudohypertrophic muscular dystrophy by the oral administration of 5 Gm. of glycine daily for eight periods of three months each with an interval of three weeks between each period of treatment. Chemical studies showed that the creatinuria was definitely increased and that after a period of a few weeks this gradually decreased until it had reached its former level, although the glycine had not been discontinued. Clinically there was a slow disappearance of fatigue which was accompanied by increased activity and an improvement in motor acts that were formerly executed in a very poor and awkward manner. Chanutin, Butt, and Royster[49] treated five patients in this manner with improvement in three; the other two showed improvement at first but soon became worse. Mettel and Slocum[50] treated three patients with marked improvement in two and slight improvement in the other one. Beneficial therapeutic results have also been reported by Kostakow and Slauck[51]. Beard and Tripoli[52] obtained improvement in their patients by the oral administration of either glycine or glutamic acid and also observed a creatinuria, which after two or three weeks gradually disappeared. This, they considered, indicated a retention of muscle creatine in the body. Harris and Brand[53] were unable to detect any striking improvement as reported by Thomas, Milhorat and Techner[54]. In an attempt to evaluate the efficacy of the two procedures, i.e., the use of adrenalin and pilocarpine and the use of glycine or glutamic acid, Voshell[55] treated fourteen patients and concluded that the patients who received adrenalin and pilocarpine responded more favorably. Cuthbertson and Maclachlan[56] have recently reported the results of prolonged glycine administration in nine cases of muscular dystrophy. Five of the nine cases were of the pseudohypertrophic type and except for one case there was definite improvement as evidenced by gain in weight, and gain in strength. In view of the consistent chemical abnormalities that have been repeatedly demonstrated by different observers in this type of muscular dystrophy it would appear that the best therapeutic results should be expected from that form of therapy which is directed toward the underlying metabolic disturbance. At the present time the administration of amino acetic acid

offers the patient greater hope than any form of treatment heretofore employed.

As the term "Glycine" is gradually replacing the synonym "Glycocoll" in chemical nomenclature it is advisable to point out that there is now available on the market a toxic substance used by photographers in developing films which is dispensed under the term "Glycin." On account of the similarity of the two names unfortunate mistakes have been made and unpleasant accidents have occurred. For this reason the Council on Pharmacy and Chemistry of the American Medical Association has adopted the term "Aminoacetic Acid" as a means of protecting the public against accidental poisoning. It is strongly urged that physicians prescribing this substance will conform with the requests of the Council.

REFERENCES

1. Park, W. H.: J. A. M. A. 99:1050, 1932.
2. Kramer, S. D.; Aycock, W. L.; Solomon, C. I., and Thenebe, C. L.: New Eng. J. Med. 206:432, 1932.
3. Neal, J. B.: Poliomyelitis. Baltimore: Williams & Wilkins Co. P. 240, 1932.
4. Flexner, S., and Lewis, P. A.: J. A. M. A. 54:1780, 1910.
5. Abramson, H. L., and Gerber, H.: J. Immunol. 3:435, 1918.
6. Abt, Isaac H., and Abt, Arthur F.: Year Book of Pediatrics, 1934.
7. McKinley, J. C., and Larson, W. P.: Soc. Exper. Biol. Proc. 24:297, 1926-27.
8. Kolmer, John A.: Am. J. M. Sc. 188:510, 1934.
9. Kolmer, John A.; Klugh, G. F., and Rule, A. F.: J. A. M. A. 104:456, 1935.
10. Kolle, W.: Deutsche med. Wchnsch. 58¹:304, 1932.
11. Petroff, S. A.: New Eng. J. Med. 206:436, 1932.
12. Clark, A. L.: Proc. Staff Meet. Mayo Clin. 6:605, 1931.
13. Helmholz, H. F.: Proc. Staff Meet. Mayo Clin. 6:609, 1931.
14. Fuller, A. T.: Lancet 1:855, 1933.
15. Clark, A. L.: Practitioner 132:34 (Jan.) 1934.
16. Clark, A. L.: J. Urol. 31:193, 1934.
17. Gainsborough, Hugh: Practitioner 132:45 (Jan.) 1934.
18. Helmholz, H. F.: J. Urol. 31:173, 1934.
19. Rector, John M., and Wheeler, Warren E.: New Eng. J. Med. 211:143, 1934.
20. Summerfeldt, Pearl, and Brown, Alan: J. Pediat. 5:727, 1934.
21. Leslie, P. H., and Gardner, A. D.: J. Hyg. 31:423, 1931.
22. Sauer, L. W.: J. Pediat. 2:740, 1933. J. A. M. A. 100:239, 1933. J. A. M. A. 101:1449, 1933.
23. Nicolle, C., and Conor, A.: Compt. rend. Acad. d. sc. 24:1849, 1913.
24. Bordet, J., and Sleeswyk: Ann. Inst. Pasteur 24:476, 1910.
25. Sauer, L. W.: J. A. M. A. 102:1471, 1934.
26. Bokay, Z.: Jahrb. f. Kinderh. 106:301, 1924.
27. Madsen, T.: Boston M. and S. J. 192:50, 1925.
28. Madsen, T.: Rec. franc. de Pédiat. 5:145, 1929.
29. Madsen, T.: J. A. M. A. 101:187, 1933.
30. Sauer, L. W.: Am. J. Dis. Child. 49:69, 1935.
31. Krueger, A. P.; Nichols, V. C., and Frawley, J. M.: Proc. Soc. Exper. Biol. & Med. 30:1097, 1933.
32. Frawley, J. M.; Stallings, M., and Nichols, V. C.: J. Pediat. 4:179, 1934.
33. Frawley, J. M.: J. Pediat. 4:184, 1934.
34. Munns, G. F., and Aldrich, C. A.: J. Pediat. 5:590, 1934.
35. Duchenne: L'Union Medicale VII 51:202, 1853.
36. Goldstein, H.: Arch. Pediat. 47:377, 1930.
37. Barker, L. F.: M. Clin. North America 14:109, 1930-31.
38. Landé, L.: Ztschr. f. Kinderh. 42:355, 1926.
39. Janney, N. W.; Goodhart, S. P., and Isaacson, V. I.: Trans. Sect. Nerv. and Ment. Dis. A. M. A. P. 259, 1929.
40. Kuré, K., and Okinaka, S.: Klin. Wchnschr. 9:1168, 1930.
41. Aring, C. D., and Cobb, S.: Medicine 14:77, 1935.
42. McCrudden, R. H., and Sargent, C. S.: Arch. Int. Med. 17:465, 1916.
43. Milhorat, A. T.; Techner, F., and Thomas, K.: Proc. Soc. Exper. Biol. & Med. 29:609, 1932.
44. Magee, M. C.: Am. J. Dis. Child. 43:19, 1932.
45. Magee, M. C.: Am. J. Dis. Child. 43:322, 1932.
46. Levene, P. A., and Kristeller, L.: Am. J. Physiol. 24:45, 1909.
47. Hough, G. deN., Jr.: J. Bone & Joint Surg. 13:825, 1931.
48. Hough, G. deN., Jr.: J. A. M. A. 101:2113, 1933.
49. Chanutin, A.; Butt, H. R., and Royster, L. T.: J. Biol. Chem. 100:xxvi, 1933.
50. Mettel, H. B., and Slocum, Y. K.: J. Pediat. 3:352, 1933.
51. Kostakow, S., and Slauck, A.: Deutsche Arch. f. klin. Med. 175:25, 1933.
52. Beard, H. H., and Tripoli, C. J.: New Orleans M. & S. J. 86:205, 1933.
53. Harris, M. M., and Brand, E.: J. A. M. A. 101:1047, 1933.
54. Thomas, K.; Milhorat, A. T., and Techner, F.: Ztschr. f. physiol. Chem. 205:93, 1932.
55. Voshell, A. F.: South M. J. 26:156, 1933.
56. Cuthbertson, D. P., and Maclachlan, T. K.: Quart. J. Med. 3:411, 1934.

FIRE RESPONSIBLE FOR LOSS OF LIFE AND PROPERTY

It has been reported that, since the founding of the Republic, the losses of life and property due to fires have exceeded the losses in all of the wars carried on by the United States.

Every minute, on the average, a building fire occurs somewhere in this country and every day about twenty people die because of fire. Burns without deaths cause an unknown addition to the losses by fire.

The total economic loss is more than one billion dollars a year. Most of the fires are due to carelessness and are preventable. A film on fire prevention, which can be used as an educational measure, may be obtained on application to the Aetna Life Insurance Company of Hartford, Connecticut.

TUBERCULOSIS VIEW OF DUBLIN DISPUTED

Controverting Dr. Louis I. Dublin, who in a recent speech predicted complete control and eradication of tuberculosis in a half century, the National Tuberculosis Association went on record as finding the disease the principal cause of death between the ages of 15 and 40 and the directors, in a resolution, called for an increased fight against the plague.

Although the resolution in no way named the insurance statistician, it was viewed by many physicians as significant because it so closely followed Dr. Dublin's talk on control of the disease.

The resolution adopted was as follows:

"Resolved, that in view of the fact that tuberculosis is still the leading cause of death between the ages of 15 and 40 and is also the most important cause, because controllable, added stress should be laid on the continued importance of a vigorous campaign against tuberculosis."—*New York Times*, June 26.

MANY VOLUNTARY HOSPITALS HAVE HAD TO CLOSE

It is reported that, for the six years following 1928, nearly 600 voluntary hospitals in the United States have had to close their doors, and at the present time several hundred others are in a precarious condition.

In 1934 these voluntary hospitals admitted nearly five million people. The cause of this situation is the decreasing support which has been supplied by generously disposed persons. Such hospitals have been drawing on invested funds and have been ambitious to continue service to the people up to the limit of their resources.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 21271

PRESENTATION OF CASE

A sixty-one year old German night watchman entered complaining of hoarseness and general pains of four months' duration.

Approximately two years before admission while in Munich he had a chill. This was followed by an increase in frequency and nocturia which he had had for a few years. A month later, after he had returned to this country, a cystoscopy and an intraurethral operation were performed under spinal anesthesia at a local hospital. No report was given to him but he felt much relieved, although he still had nocturia about two or three times. About a year later, approximately nine months before admission, his frequency increased somewhat and he also had slight incontinence. Five months before admission he had another operation at this same local hospital following which he was started on a series of bladder irrigations. In spite of all treatment frequency returned and one month later he had a third operation which consisted of a transurethral prostatic resection. A note from his local hospital revealed that his first operation consisted of a right vesiculo-ureterotomy for a ureterocele. Phenolsulphonephthalein test at that time showed a 1.5 per cent excretion from the right kidney and 3.5 per cent from the left kidney in nine minutes. The appearance time was five minutes on both sides. The second cystoscopy done at that hospital showed a kink in the right ureter. This ureter was dilated and the renal pelvis lavaged with 1 per cent silver nitrate. Pyelograms showed the kidneys normal in size, shape and position. Shortly after this operation he developed hoarseness which did not improve and which he believed had become slightly worse. At the same time he began to have pains in his legs, hips, back and shoulders. These pains were fleeting but very severe, and occurred at practically any time, although they were brought on very often and made much worse by climbing stairs. He had continued work until about one month before admission, at which time he entered a hospital for massage and baking. While in the hospital laryngoscopic examination showed fixation of the left vocal cord, due to paralysis of the left recurrent laryngeal nerve.

The patient was born in Germany but had been in the United States for the past forty-three years. He had the ordinary childhood diseases including a questionable attack of rheumatic fever. Very often he had sore throat. Forty years before admission he had a severe attack of gonorrhea and a few years later had a flare-up. For the past thirty years he had rheumatism which affected various joints, particularly the arms, shoulders and back. About fifteen years before entry he had a penile lesion but it disappeared in a few weeks. He had had two others like it since then.

His father died at the age of seventy-two of strangulated hernia. His mother died at seventy-five of cardiac failure. Two brothers died at the ages of thirty-four and fifty-eight of rheumatism. Another brother died at home of tuberculosis at the age of twenty-six. He had one sister seventy years old who was living and well except for rheumatic pains. Another sister died in an asylum.

He had been married for thirty-four years. His wife died four years ago of hypertensive heart disease. She had had one miscarriage; no children.

Physical examination showed a well-developed man lying in bed, not acutely ill. He had an acetone breath and showed evidence of recent loss of weight. There was moderate pallor of the skin. His voice was hoarse and upon expiration was soft and rasping. The heart was moderately enlarged on both sides. There was a soft systolic murmur heard over the precordium and frequent extrasystoles every four to ten beats. The heart sounds were distinct. The blood pressure was 120/83. There was an external non-bleeding hemorrhoid. The right lobe of the prostate was firm and hypertrophied, the left lobe indurated but not clearly nodular. The right knee joint showed slight impairment in extension and was larger than the left. The increased size appeared to be due to hypertrophic changes of the joint bones or cartilage.

The temperature was 97°, the pulse 98. The respirations were 22.

Examination of the urine on admission showed a specific gravity of 1.010, a large trace of albumin and large numbers of white blood cells and clumps of granular casts. The blood showed a red cell count of 3,300,000, with a hemoglobin of 60 per cent. The white cell count was 4,400, with a differential of 52 per cent polymorphonuclears, 45 per cent lymphocytes, one large mononuclear, one eosinophil and one basophil. Examination of the stools was negative. A Hinton test was negative. The nonprotein nitrogen was 46 milligrams per 100 cubic centimeters, the uric acid 3.36 milligrams. A complement fixation test for gonococcus was negative. An electrocardiogram showed auricular fibrillation, rate 150, with ectopic ventricular contractions and

aberrant ventricular responses. There was a low T_1 with slightly diphasic T_2 and T_3. There were slurred Q-R-S complexes in lead III. A gastric analysis was negative. The spinal fluid was negative. A phenolsulphonephthalein test showed 10 per cent excretion at the end of twenty-five minutes, a total of 30 per cent at the end of an hour. The serum protein of the blood was 6.6 per cent. Calcium and phosphorus of the blood serum were 11.11 and 4.70 milligrams per 100 cubic centimeters respectively. Phosphatase was 2.0 units.

X-ray examination of the pelvis showed gross arthritic changes involving all the bones. There was calcification in the region of the prostate and no evidence of metastatic disease. A chest film was negative. A skull plate showed unusual distribution of the vascular channels, more prominent in the anterior portion. The sella turcica was not remarkable. A film of the right shoulder showed slight irregularity along the greater tuberosity. There was an unusual shadow, 4 by 1 centimeter, in the joint space between the head of the humerus and the acromial process.

A urological consultant did not believe that the prostate was malignant. A laryngologist found paralysis of the left vocal cord. The arytenoid was slightly thickened. There were no ulcerations. The patient continued to have much pain in the joints despite salicylate treatment. Approximately two weeks after admission Bence-Jones protein was found in the urine. A review of the films of the pelvis and skull, however, showed no definite x-ray evidence of myeloma. There was slight variation in trabeculation in both ilia. He continued to have severe pain and was given x-ray treatment. This gave no definite relief. He gradually went downhill. The red count of the blood ranged around 2,500,000, with a hemoglobin of 50 per cent. The nonprotein nitrogen rose to 100 and the CO_2 combining power to 55.5 volumes per cent. His respirations became Cheyne-Stokes in character, he developed considerable twitching of the hands, and died five weeks after admission.

Differential Diagnosis

Dr. Fuller Albright: Of course, I would think, but nobody else would, that hoarseness and generalized pains suggest hyperparathyroidism. However, it cannot be that or I would have known about it. So that is out of the question.

I did not know what a ureterocele was but it appears to be a prolapse of the ureter into the bladder. The operation consists in going into the bladder, cauterizing it and letting it heal over.

"The appearance time was five minutes on both sides." They tell me that the appearance time is the most important thing, and that is fairly good.

The fact that the pains in his legs, hips, back and shoulders were made worse on climbing stairs and exertion makes me think it was not due to arthritis. It looks like some underlying bone disease.

One attack of gonorrhea followed by a flare-up suggests that he developed a chronic prostatitis at that time. His rheumatism was presumably not hypertrophic, but some infectious type and presumably connected with the chronic prostatitis.

A recurrent penile lesion, which always appears the same, is probably herpes. That does not lead us to believe he had lues.

Presumably the first time his wife got pregnant she miscarried and probably had no more children because she developed chronic salpingitis. I think that is the common story with chronic gonorrhea.

There were no diastolic murmurs heard so he presumably did not have rheumatic heart disease.

By a large trace of albumin in this hospital we mean a perfectly huge amount. It is one of our peculiar nomenclatures. We get the impression that there is something going on in the tubules of his kidney.

His blood studies show that his bone marrow seems to be depressed in both the white and red cell series.

A slightly elevated nonprotein nitrogen suggests beginning renal insufficiency.

"The uric acid was 3.36 milligrams." We know that the arthritic service was on the job and had ruled out gout as a cause of the arthritis. Gout is not ruled out, but is unlikely with a normal uric acid.

The fact that he had slurred Q-R-S complexes in lead III does not mean that he has arteriosclerotic heart disease. It is quite common.

They were thinking when they did the lumbar puncture that his laryngeal paralysis was a part of central nervous system lues, as it occasionally is.

The phenolsulphonephthalein test shows a definitely impaired but still a fairly good excretion.

The normal serum protein is surprising in view of the huge amount of albumin in the urine but also he has no edema. A slightly elevated phosphorus is consistent with renal damage. The calcium at the upper limit of normal is not surprising in view of the later findings.

"Phosphatase was 2.0 units, two Bodansky units. This should not be confused with Kay units, 2.0 is normal for Bodansky units.

I take these x-ray changes to be consistent with infectious arthritis. I do not believe they are hypertrophic arthritis. I do not put much significance in these vascular channels in skulls but I may be wrong. I will be interested in hearing what Dr. Holmes says.

Bence-Jones proteinuria is of course the high

point in the whole story. It cannot be laughed off.

X-ray Interpretation

Dr. George W. Holmes: This is the chest film. He has a high diaphragm on the left side with gas below it which I would interpret as being intestinal gas. The left border of the heart is obscured. It is not enlarged to any extent. He has a slight increase in the supracardiac shadow. This is the ascending and this the descending aorta. It is not possible to measure the accurate diameter of the aorta from the film. But I think it is within normal limits. The diameter of the aorta varies considerably. There is nothing abnormal in the lung fields. In view of the story of laryngeal paralysis one might suspect the esophagus. There is no obstruction and no indication of tumor.

This second film is an oblique view to show more completely the aorta, here the arch, ascending and descending portions are quite distinct; certainly nothing there to suggest aneurysm or any gross dilatation. The pelvis shows a small group of calcified shadows in the region of the prostate gland. I think that calcification is more likely to occur in an inflammatory process than in malignant disease. The bones of the spine and pelvis are normal. There is nothing to suggest a bone lesion. Here is a group of dense shadows in the soft tissue. They may be glands or an old hematoma and are of no particular importance. The joint spaces show very little change.

In the skull we have a rather prominent grouping of the blood vessel markings but no definite evidence of disease.

Differential Diagnosis Continued

Dr. Albright: It seems to me fairly clear that, with a big heart, with a nonprotein nitrogen of 46, and with the delayed appearance of the dye, he certainly had some renal insufficiency. I think the terminal event is renal insufficiency and uremia. He had twitching and went out like a person who had uremia. The question is what was the cause of the kidney lesion. The first thought is some type of kidney associated with Bence-Jones protein. The urine examination is perfectly typical of a kidney lesion in myeloma with Bence-Jones protein. He had a large trace of albumin, clumps of granular casts and white blood cells. What was more important, he did not have any edema, which would be surprising if he had those same urinary findings in ordinary chronic nephritis. It is also of some significance that he had a serum protein of 6.6. This is a normal value; the fact that it is not low suggests some factor tending to elevate it, such as myeloma. We are not told how much there was in his urine. The kidney gets into trouble apparently in Bence-Jones proteinuria due to plugging of the tubules with the Bence-Jones protein.

The next question that comes up is the cause of the Bence-Jones proteinuria in this case. I think one is apt to believe that it is always due to multiple myeloma and in 99 per cent of the cases it probably is. I looked up this question this afternoon. It is known to occur with leukemia and Dr. Minot told me he is sure he has seen it in metastatic malignancy. I have seen it in one case with proved hyperparathyroidism.

In favor of myeloma is this perfectly characteristic onset of bone pain. The slightly elevated calcium and slightly elevated phosphorus in the blood are in favor of myeloma. You usually think of a myeloma skull as one with a whole lot of sharply defined defects in it, but we have cases that have not shown that. I remember a case with uniform decalcification and nothing to suggest localized areas. So I see no reason why we cannot make the diagnosis of multiple myeloma with secondary renal involvement. There is a second possibility, metastatic malignancy. We turn our minds to the prostate. He had this trouble starting originally in the prostate with incontinence, then this laryngeal paralysis right after manipulation of the prostate, as though something might have gone from the prostate perhaps into the brain. It is hard to believe that he would have got such a localized area with metastases to the brain but it is possible so we have to consider cancer of the prostate. It is also true that it is unusual to get metastases to bone without seeing lesions by x-ray. Prostatic cancer can do that because of its osteoplastic tendency when it forms bone rather than destroys it and may cause uniform density with no changes in the x-ray. We do not have to consider hyperparathyroidism. Leukemia is pretty well ruled out. The spleen was not enlarged. The third possible diagnosis would be chronic nephritis with uremia, on the theory that the Bence-Jones protein had nothing to do with it. He had, however, no hypertension and no eye ground changes. Amyloid disease, in view of the chronic sepsis and the large amount of albumin in the urine, is a possibility. If he had that, he should have had a low serum protein and edema.

The final possibility is that all this did start with cystitis and pyelitis and that he did die in uremia as the result of a pyelonephritis. I would like to know what the temperature was and if he did die of sepsis. I think that is unlikely because the white count was low.

My final diagnosis, however, is that he had multiple myeloma with myeloma kidneys and death due to uremia; a chronic infectious arthritis that probably started with a gonococcus urethritis and chronic prostatitis; arteriosclerotic heart disease with chronic fibrillation.

Clinical Discussion

Dr. Arlie V. Bock: This has been a very illuminating discussion by Dr. Albright from my point of view. When the patient arrived on the ward my impression was that he had malignant disease. There are at least two types of response in people who have malignant disease, one having a quite normal appearance, even though you know certainly that malignancy is present. The second type have a facies that is quite characteristic of malignant disease. This patient fell in the latter group. In looking him over pretty thoroughly we excluded the prostate among other possible causes of malignancy. The suggestion of myeloma occurred to us and the Bence-Jones protein was found by Dr. Jacobson; we were surprised by the relatively huge amount present in the urine. Then we were a bit disappointed in not being able to get any confirmatory evidence of myeloma on the basis of the x-ray findings, all of which seemed to be negative from that point of view. He did have evidence of chronic nephritis. He died in a state of uremia and while we felt that there was little doubt of his having myeloma, we discharged him with a question of myeloma instead of making a positive diagnosis because we know that other cases of malignant disease may have Bence-Jones protein in the urine.

Clinical Diagnoses

Chronic nephritis.
Uremia.
Hypertrophic arthritis.
Myeloma?

Dr. Fuller Albright's Diagnoses

Multiple myeloma.
Myeloma kidney.
Uremia.
Infectious arthritis.
Chronic prostatitis.
Arteriosclerotic heart disease.

Anatomic Diagnoses

Plasma cell myeloma, diffuse.
"Myeloma kidney."
Septicemia, streptococcus non-hemolyticus.
Hyperplasia of retroperitoneal glands.
Hydrothorax, left.
Diverticulosis of the sigmoid and descending colon.
Pleuritis, chronic fibrous.
Pericarditis, chronic fibrous, localized.

Pathologic Discussion

Dr. Tracy B. Mallory: The autopsy on this man was at first very disturbing. We could not find anything until we got down to his kidneys, which were somewhat smaller than normal, 225 grams, the normal would be nearly 350 grams. When the capsules were stripped the surfaces were very pale gray. It was quite obvious that there was something wrong with them.

The remnants of his prostate were somewhat hypertrophied and contained some calcification. The heart was perfectly normal. The coronaries were negative, the aorta negative. There was a little emphysema. Naturally in view of the story of the finding of Bence-Jones protein we examined a number of bones and they all looked perfectly normal. The cortex was not thin, the trabeculae were present in normal numbers. The marrow seemed a little grayer than normal but there were no tumor foci, so that until the microscopic sections came through we really had no idea what the situation was.

This first slide is a total cross section of a vertebra. You can see the layers of cortical bone on either side and between them an approximately normal distribution of marrow cells and fat cells. When we come down with the higher power, however, we find that between the fat cells the vast majority of the cells are of one type, with dark staining, basophilic cytoplasm and a perfectly round eccentric nucleus. They are typical plasma cells and comprise at least two-thirds of all the marrow cells present.

The lymph nodes were at first thought to be normal but more careful examination showed numerous plasma cells scattered through the pulp. The spleen and liver, however, escaped the infiltration.

The kidneys present the typical picture seen in cases of multiple myeloma. The convoluted tubules are free from casts but the straight tubules—both Henle's loops and the collecting tubules—contain very numerous exceptionally dense hyaline casts. The glomeruli and tubules show only slight arteriosclerotic changes. This type of kidney lesion is characteristically limited to the myeloma cases which show Bence-Jones proteinuria.

Dr. Bernard M. Jacobson: There are a number of interesting features of this case. I should like to say in passing that while the patient was alive Dr. Hunter found a few plasma cells in the smear, a finding that is certainly abnormal and which might be interpreted as evidence of plasma cell type myeloma.

The masses described in the x-ray report in the region of the shoulder and on the left side of the pelvis might possibly be amyloid deposits; a condition described in myeloma which we have not seen at this hospital. They unfortunately were not examined at the necropsy.

CASE 21272

Presentation of Case

A five and a half year old girl entered through the Emergency Ward complaining of vomiting of two days' duration.

Two days before entry she awoke very early in the morning and began to vomit. She continued to vomit all that day. The vomitus was described by her grandmother as "phlegmy" fluid which became greenish toward the end of the day. The child ate nothing during that day and had no bowel movement. She was unable to keep food or fluids down. That evening her mother gave her some Ex-lax, following which the patient complained of right-sided abdominal pain which she said had been present all that day. A physician found tenderness in the right lower quadrant and advised admission to the hospital. She had had no pain on micturition.

Her mother, father and one brother were living and well. There was no history of diabetes, carcinoma or tuberculosis.

At the age of nine months she had lobar pneumonia, followed two weeks later by measles. During the past six months she had had severe sore throat associated with enlarged cervical glands. She had always had a poor appetite and was quite finicky about her food. Her bowel habits were very irregular. She had been given all sorts of laxatives.

Physical examination showed a very sick child whose skin was hot and flushed. There was herpes on the lips. Both tonsils were enlarged, inflamed and contained on their surfaces patches of yellowish exudate. The chest was clear, the heart negative. The abdomen was soft but no peristalsis could be heard. No masses were felt. There was slight costovertebral tenderness but no spasm on the right side. A rectal examination showed no tenderness.

The temperature was 104°, the pulse 130. The respirations were 24.

Examination of the urine showed a very slight trace of albumin and a green to orange test for sugar. The sediment contained a few white blood cells and occasional red blood cells. There were no casts. The stools were negative. Examination of the blood showed a red cell count of 37,000, 88 per cent polymorphonuclears.

Her condition remained unchanged on the second day except for a slightly lower temperature and pulse. On the fourth day the patient was more alert but very irritable. She cried out whenever touched. Her abdomen was resistant throughout to deep palpation. Both costovertebral angles were tender but this seemed to be fairly superficial. That evening a fine punctate rash appeared. The throat was not acutely inflamed. The temperature was 104°, the pulse 120, the respiration 25. She still was very irritable and resented examination. Her abdomen was kept rigid voluntarily but could be softened when desired. She had one bowel movement that evening following an enema. On the fifth day the child's neck became stiff and Kernig's sign was positive. A lumbar puncture showed clear fluid with an initial pressure of 220 millimeters which rose to 350 upon jugular compression and promptly fell following release. There were four cells, all lymphocytes. A Pandy test for globulin was negative. The sugar was slightly increased. An ear consultant found no definite abnormality. Two days later the child appeared in fairly good spirits and showed only slight spasm in the right upper quadrant anteriorly but extreme costovertebral tenderness. Her temperature was 104.4°. Examination of an uncentrifuged specimen of urine showed 4 to 12 white blood cells per high power field and an occasional red blood cell. A centrifuged specimen was loaded with both red blood cells and white blood cells and showed a positive guaiac test. The white blood cell count was 21,000. An intravenous pyelogram showed the kidney outlines on both sides. The right appeared considerably larger than the left, but both were smooth in outline and normal in shape. The dye appeared promptly on both sides. On the right the pelvis was imperfectly filled and there was no filling of the upper major and minor calices. The bladder was not remarkable. On the ninth day operation was performed.

Differential Diagnosis

Dr. Edward L. Young, Jr.: Any child of this age who starts to vomit is at once under suspicion of beginning one of the exanthemata or one of most any of the acute infections and it is the starting point of so many things in a youngster that it really means very little. The fact that it came on several hours before any abdominal pain is the reverse order in which appendicitis generally appears and is, I think, worth paying attention to. Of course, the other side of that picture is the fact that at five and a half appendicitis is often very atypical and, of course, must always be considered.

On examination the only lead we are given is that of probable sepsis somewhere because of temperature and a possible source of sepsis in the tonsils. The white count is very high and the polymorphonuclear percentage likewise. This backs up our feeling that we have got to find the source of infection. The abdominal examination would seem to rule out a focus of trouble there sufficient to cause this temperature. The lack of peristalsis does not fit into the picture as it appears at this stage of the game. The continued tenderness in the costovertebral angles may be of importance but there has to be more to go with it before it will lead us anywhere. Of course, a urinary infection in a child will make them just as sick as this child apparently was. I do not see any record of urinary culture, however, which might have helped. It is not unusual, in fact according to some urologists, it is a very common thing to have the throat the starting point of acute pyelitis or pyelonephritis.

On the fifth day the child showed evidence of meningeal irritation but the lumbar puncture would seem to rule out any definite meningitis. The ear consultant was called in on the basis that at this age the ears are one source of unexplained temperature. He did not help out, however.

The one thing that seems to continue is the costovertebral tenderness, apparently increasing with particular attention directed toward the right side. The urine also seems to point toward trouble in this neighborhood and it seems to me that a perinephric abscess has to be considered a very definite possibility. We know that a certain number of perinephric abscesses start from small cortical abscesses which rupture into the perinephric tissue. In those cases the urine will show the organism on culture and there will be microscopic blood and pus in the sediment. In other cases, probably about half of them, a perinephric abscess is a definite metastatic process in the perinephric tissue itself. The perinephric fat is a definite entity with its own blood supply and early in the process the infection is localized and can cause a great deal of pain. It is an interesting fact coming from some clinics that the delay in diagnosis, apparently unavoidable, is considerable. I believe that at the Mayo Clinic it is reported as over thirty days. The study of the kidneys suggests that there is some trouble in the right side and it seems to me in the face of the evidence we have that an exploratory operation directed toward a perinephric abscess is definitely indicated.

Pre-Operative Diagnosis

Abscess of right kidney.

Dr. Edward L. Young's Diagnoses

Perinephric abscess.
Abscess of the kidney.

Operative Note

"Oblique incision in right loin. In exposing the kidney it was found that the perirenal fat was edematous and adherent. In freeing the upper pole of the kidney an abscess cavity was broken into with the escape of considerable thick, odorless pus. The kidney was densely adherent throughout, showing evidence of long standing infection. The kidney was removed without difficulty. Two wicks were placed, one to the site of the upper pole of the kidney and one to the pedicle, and the wound was closed in layers."

Further Discussion

Dr. Young: There is very little more to say. The condition is undoubtedly cortical abscesses rupturing into the perinephric tissue. In these border line cases it is always questionable whether to drain the abscess and leave the kidney intact or to do a nephrectomy. We know that in doubtful cases it is probably safer to err on the side of nephrectomy, as a secondary operation is more difficult. Here they felt that the only safe thing to do was to remove the kidney.

The prognosis is of course excellent although later in life if this person becomes pregnant she must be under close observation to be sure that her only remaining kidney does not make trouble.

Pathologic Diagnoses

Pyonephritis.
(Carbuncle of kidney.)

Pathologic Discussion

Dr. Tracy B. Mallory: The kidney which was removed at operation turned out to be a typical example of a so-called carbuncle of the kidney. The upper pole was swollen to nearly twice the size of the lower pole by a large number of practically contiguous abscesses, varying from two to ten millimeters in diameter. Some of these abscesses were immediately subcortical and a few of them had obviously ruptured into the perinephric tissues thereby giving rise to the perinephric abscess. Others were immediately beneath the pelvic epithelium and here again a few had broken through and served to account for the pus in the urine. The probable source of this type of infection is hematogenous.

The New England
Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE, M.D., *Chairman* HOMER GAGE, M.D.
R. B. OSGOOD, M.D. R. M. SMITH, M.D.
F. H. LAHEY, M.D.

EDITORIAL STAFF

REID HUNT, M.D. STEPHEN RUSHMORE, M.D.
JOHN P. SUTHERLAND, M.D. HANS ZINSSER, M.D.
GEORGE R. MINOT, M.D. BENJAMIN WHITE, PH.D.
FRANK H. LAHEY, M.D. HENRY R. VIETS, M.D.
SHIELDS WARREN, M.D. ROBERT N. NYE, M.D.
GEORGE L. TOBEY, JR., M.D. ROBERT M. GREEN, M.D.
C. GUY LANE, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROGERS, M.D.

WALTER P. BOWERS, M.D., *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY
PUBLICATION COMMITTEE

CARLETON R. METCALF, M.D. HENRY H. AMSDEN, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY
PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
L. H. ROSS, M.D.

SUBSCRIPTION TERMS: *$6.00 per year in advance, postage paid for the United States, Canada $7.04 per year, $8.52 per year for all foreign countries belonging to the Postal Union.*

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 Fenway, Boston, Mass.

A SYMPOSIUM ON MEDICAL EDUCATION IN MASSACHUSETTS

IN this issue, for the first time, the Massachusetts Medical Society through its Committee on Medical Education and Hospitals has attempted to draw attention to certain phases of medical education which are of particular local interest.

The manner in which physicians are registered in our Commonwealth can be improved. In order to bring about most wisely a reform of this character, it is essential, as a starting point, that doctors be familiar with the history and nature of our present licensure law. The Editor of the *Journal* has described this clearly and succinctly.

Books play an important part in any process of medical education. The article by Dr. Lincoln Davis, President of the Boston Medical Library, gives some idea of what a well-run library may accomplish as a center of postgraduate instruction and describes how the Library in Boston is eager to lend a helping hand to all physicians in the community who are interested in availing themselves of this unique collection.

Hospitals form a necessary link in any chain of medical progress. Dr. J. H. Pratt and Dr. C. H. Lawrence have discussed hospitals and their relation to education from different viewpoints, Dr. Pratt pointing out how the community hospital can be made into a vitally important center of postgraduate education, and Dr. Lawrence reminding the staff members of hospitals approved for intern training that they are obligated to teach their interns carefully and systematically and, therefore, assume teaching responsibilities as definite as those undertaken by members of the faculty of any medical school.

Finally, the case report by Dr. Joseph C. Edwards illustrates the quality of work that Massachusetts interns are capable of performing. This paper received the prize offered this year by the Massachusetts Medical Society for the best case report written by an intern in a Massachusetts hospital approved for intern training and offering a rotating internship.

The opportunities for postgraduate education in Massachusetts are varied and open to many, and in the future they can be developed to even greater advantage than they have been in the past. One cannot have attended the recent meeting of the Society without realizing how widespread throughout our ranks is the earnest, sincere desire to know more and to do better work. The more intelligently the opportunities at hand are used, the more rapid will be the growth of general medical knowledge.

INFANTILE PARALYSIS CONVALESCENT THERAPEUTIC SERUM

ON page 36 of this issue, Dr. Chadwick sounds a timely word of warning as to the therapeutic value of infantile paralysis convalescent serum. As the next few months will inevitably witness a normal seasonal increase in the incidence of the disease, and may even see the unfolding of an epidemic that no one today can foresee, it is well that the medical profession should realize the limitations of a serum, the use of which is too often based on emotional rather than scientific grounds.

With the attention given to infantile paralysis during and after the 1916 epidemic, it was devoutly to be hoped that some specific therapeutic agent might be found. For some years, the studies carried on in this State under the auspices of the Harvard Infantile Paralysis Commission offered encouragement to the belief that the serum, if used in the preparalytic stages, might be of some therapeutic value in minimizing the subsequent paralysis. Even through the 1931 epidemic individual instances were numerous in which favorable effects followed, and might

therefore be due to the serum. Even these, however, were subject to the criticism provoked by a lack of control cases, for it was manifestly impossible to make certain that the treated cases had not been of milder type than those already paralyzed and therefore not treated. Studies in other states, where serum was not so readily available and where more skepticism existed as to its value, showed beyond dispute that when the value of serum was measured by comparison with a control group of alternate cases, no scientific evidence could be brought forward to support the belief in its efficacy.

Thus were shattered our hopes that convalescent serum might serve as a specific therapeutic agent. It is safe to say that in its continued use today, the physician is merely hoping against fact that his particular case will in some way show some improvement that may be attributed to the serum. In the absence of any other specific therapy, and keeping in mind the popular hysteria with respect to the disease, the use of the serum is not greatly dissimilar to the drowning man's frantic grasp at a passing straw. The most that can be said for the serum is that its use may to a certain degree allay popular panic, and give to the victim's parents a measure of comfort in the thought that something tangible is being done. Beyond this it is apparently of little value. It is to be hoped that the medical profession, in its proper eagerness to afford to its patients every possible aid to recovery, will not lose sight of the real facts as to the value of convalescent serum.

HONORIS CAUSA

It has been rare indeed, in the last decade and a half, to have material of any importance spread upon the pages of the *Journal* without its first coming under the scrutiny of the managing editor. Special occasions, however, justify unusual methods, and his associates on the staff of the *Journal* take this means of congratulating *Doctor Walter Prentice Bowers* on their own behalf and on that of the Massachusetts Medical Society, on the honor which Harvard University has done itself in conferring upon him the degree of Master of Arts, *honoris causa*.

This degree has been conferred upon our friend, not as the editor of the *Journal*, not as a former president of the Massachusetts Medical Society, not on account of his arduous labors on the committee investigating the costs of medical care, not as a former secretary of the Board of Registration in Medicine, but on account of the years which he has given to his community as a skilled and devoted practitioner of the art of medicine.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Bowers, Walter P. M.D. Harvard University Medical School 1879. F.A.C.S. Managing Editor, *New England Journal of Medicine*. Member, Massachusetts Board of Registration in Medicine, 1894-1921. His subject is "The Massachusetts Board of Registration in Medicine." Page 1. Address: 8 Fenway, Boston, Massachusetts.

Davis, Lincoln. A.B., M.D. Harvard University Medical School 1898. F.A.C.S. President, Boston Medical Library. His subject is "The Value of the Medical Library in Medical Education." Page 5. Address: 279 Beacon Street, Boston, Massachusetts.

Pratt, Joseph H. Ph.B., A.M., M.D. Johns Hopkins University School of Medicine 1898. Physician-in-Chief, New England Medical Center. Professor of Clinical Medicine, Tufts College Medical School. His subject is "The Community Hospital as a Center of Postgraduate Education." Page 7. Address: 270 Commonwealth Avenue, Boston, Massachusetts.

Storey, W. Edward. M.D. Emory University School of Medicine, Atlanta, Georgia 1930. His subject is "Notes on the Small Hospital as a Center of Postgraduate Education." Page 11. Address: Columbus, Georgia.

Lawrence, Charles H. A.B., M.D. Harvard University Medical School 1908. Physician, Boston Dispensary. Instructor in Medicine, Tufts College Medical School. His subject is "Internships in Massachusetts Hospitals." Page 11. Address: 520 Commonwealth Avenue, Boston, Massachusetts.

Edwards, Joseph C. A.B., M.D. Harvard University Medical School 1934. Intern, Springfield Hospital, Springfield, Mass. His subject is "A Baffling Case of Pulmonary Carcinomatosis." Page 15. Address: Springfield Hospital, Springfield, Massachusetts.

Faulkner, James M. A.B., M.D. Harvard University Medical School 1924. Visiting Physician, House of the Good Samaritan. Research Fellow, Thorndike Memorial Laboratory and Junior Visiting Physician, Boston City Hospital. Assistant in Medicine, Harvard Medical School. His subject is "The Effect of Administration of Vitamin C on the Reticulocytes in Certain Infectious Diseases." Page 19. Address: 264 Beacon Street, Boston, Massachusetts.

Eley, R. Cannon. M.D. Medical Department, University of Virginia 1925. Instructor in

Pediatrics and Communicable Diseases, Harvard Medical School and School of Public Health. Associate Visiting Physician, Children's Hospital, Boston, Massachusetts. His subject is "Progress in Pediatrics." Page 20. Address: Children's Hospital, Boston, Massachusetts.

MASSACHUSETTS LEGISLATIVE NOTES

House No. 2245.
Reported on **House No. 1894.**
Referred to Ways and Means, House.

RESOLVE providing for an investigation and study by the commissioner of public health of the laws relative to public health and to the establishment and administration of a system of health insurance.

RESOLVED, That the commissioner of public health is hereby authorized and directed to make an investigation and study of so much of the Governor's address (printed as Senate No. 1) as relates to a study and revision of the laws relating to public health, and of the subject matter of current house document numbered fourteen hundred, relative to the establishment and administration of a system of health insurance. Said commissioner shall report to the general court the results of his investigation and study, and his recommendations, if any, together with drafts of legislation necessary to carry such recommendations into effect, by filing the same with the clerk of the house of representatives on or before the first Wednesday in December of the current year. For the purposes of this resolve said commissioner may expend, subject to the approval of the governor and council, such sums, not exceeding, in the aggregate, one thousand dollars, as may hereafter be appropriated therefor.

EDITORIAL NOTE:

This resolution deals with very important matters relating to the practice of medicine. That part which provides for a revision of public health laws should be given careful study by doctors, because there should be no antagonism between practitioners and health authorities.

That relating to health insurance is one of the unsolved controversial subjects before the State and Nation in which the medical profession must assist in a solution, fair to all interests if possible, with the fundamental requirement that the people of this country must have adequate medical care.

The Commissioner of Public Health has a difficult task before him in this assignment, and will need the assistance of fair-minded persons who can submit facts and arguments which will be of assistance in the preparation of his report.

House No. 1157.

The bill designated to permit the licensing of chiropractors was defeated in the House June 26, by a standing vote of ninety-two to twenty-nine, after an adverse report by the House Committee on Ways and Means.

Representative Olson of Ashland served notice that he would move reconsideration.

The attempt to have a reconsideration of the vote the next day was defeated. This apparently disposes of the attempt for this year.

MISCELLANY

THE NOMINATION OF DR. WILLIAM L. HARRIS OF MILFORD

Governor Curley has presented the name of Dr. William L. Harris of Milford to the Council to fill the position of medical examiner of the sixth Worcester District to succeed Dr. George Curley, deceased.

ADMISSION TO THE PRENDERGAST PREVENTORIUM

The Prendergast Preventorium conducted by the Boston Tuberculosis Association accepted 110 children for the opening day June 29. Dr. Eli Friedman will be medical supervisor for this season.

DR. RICHARD P. STRONG DELIVERS THE MAIBEN LECTURE

Dr. Richard P. Strong, Professor of Tropical Medicine at Harvard University, delivered the Maiben Lecture in Medicine, at the meeting of the American Association for the Advancement of Science, Minneapolis, June 25, 1935. The subject of the lecture was "The Importance of Ecology in Relation to Disease".

THE APPOINTMENT OF MR. FRANK PRESTARA

The Council has endorsed the Governor's nomination of Mr. Frank Prestara as a member of the Industrial Accident Board by a vote of five to three. Mr. Prestara took the oath of office June 26.

He succeeds Mr. N. Fusaro of Worcester.

THE ELECTION OF DR. E. W. GOODPASTURE

Dr. E. W. Goodpasture, Professor of Pathology of Vanderbilt University School of Medicine, Nashville, Tennessee, has been elected a Director of the American Society for the Control of Cancer, to fill the vacancy on the Board caused by the death of Dr. George H. Bigelow.

THE APPOINTMENT OF DR. R. M. ASH

Mayor T. S. Burgin of Quincy, Massachusetts, has appointed Dr. Richard M. Ash of 66 Greenleaf Street, Health Commissioner of that city.

BOSTON UNIVERSITY SCHOOL OF MEDICINE ALUMNI ASSOCIATION

The Boston University School of Medicine Alumni Association recently elected the following officers: President, Helmuth Ulrich, M.D.; first vice-president,

David L. Belding, M.D.; second vice-president, C. Wesley Sewall, M.D.; treasurer, Harold W. Ripley, M.D.; secretary, Rudolph Jacoby, M.D.; auditor, Cecil W. Clark, M.D.; advisory committee, Wesley T. Lee, M.D.; Harold L. Babcock, M.D.; Frank Barton, M.D.; Milo C. Green, M.D.; Winfred Overholser, M.D.; Samuel N. Vose, M.D.

Boston University Medical School needs a $500,000 endowment, $200,000 of which would be used to enlarge its buildings and equipment, and the remainder for a fund to carry on its work, Dr. Alexander S. Begg, dean of the school, said at the annual reunion of the alumni association.

He suggested that the alumni appoint a fund-raising committee.

The school, which was established in 1874 with fifty-eight students, has reached a point where it is now teaching in excess of 250 students, and has had 1700 graduates. Boston University Medical School was the first degree granting institution in New England to offer women an opportunity to study medicine.

There were about 500 men and women doctors present. Dr. Harold L. Babcock, '10, retiring president of the alumni, presided, and Dr. Edward S. Calderwood was toastmaster.

Four old "grads" rose and bowed when they were called upon. They were Drs. John P. Sutherland and George Perry, '79; George Hunt, '84, and John B. Rice, '86. Dr. Perry Wilde represented the class of '25. Members of the graduating class of the school of medicine attended. Dr. Daniel L. Marsh and Charles L. Sullivan, Jr., of Jamaica Plain, Mass., president of the 1935 senior class, were guests of honor.

THE 121ST ANNUAL REPORT OF THE TRUSTEES OF THE MASSACHUSETTS GENERAL HOSPITAL

The 121st Annual Report of the Trustees of the Massachusetts General Hospital is a testimonial to the intellectual vigor as well as to the physical health of this institution. The principal points enumerated in the Report may be placed in three groups —Scientific, Economic and Physical.

The outstanding achievement of the year 1934 was the establishment of a psychiatric service under the direction of Dr. Stanley Cobb. This service, which was made possible by a grant from the Rockefeller Foundation, has at its disposal twelve beds on the third floor of the Baker Memorial. On the same floor are the beds of Dr. Ayer's Neurological Service and Dr. W. J. Mixter's neurosurgical assignment, thus concentrating on one floor all patients with diseases of the nervous system. As the Report points out, the significance of this development lies in the close affiliation thus brought about between a psychiatric unit and the life of the General Hospital.

In the Out-Patient Department, special clinics have been formed for the study of osteomyelitis and of headaches of obscure etiology. In the laboratories, intensive study is being carried on as to the nature of renal calculi. This work links up closely with the studies which have been made with such important results on the various aspects of hyperparathyroidism studies in pernicious anemia, in endocrinology and in the field of the sympathetic nervous system. A Wolf-Schindler gastroscope was purchased in April 1933; its value has been demonstrated in the differentiation of gastritis and gastric ulcer. Over 200 examinations have been made.

This list does not by any means include all of the investigations being carried on in the various departments of the hospital, but it gives one an idea of the scope of the researches under way.

In the field of economic development, we find listed an investigation of the financial status of out-patients. During the period from January 1 to May 30, 1934, all out-patients who had been admitted two or more years previously were interviewed as to their financial condition. Seven thousand five hundred and twelve patients were investigated; and of this number only forty-eight were found to be ineligible for hospital treatment.

The Trustees have gone on record as favoring a plan of Group Insurance, but they are awaiting the coöperation of the other hospitals in the Greater Boston group.

An eight-hour day for nurses has been instituted; data are being collected as to the reactions of patients, nurses and staff to this innovation.

As to changes in the physical aspect of the hospital, it is to be noted that the land on the corner of North Grove and Fruit Streets, formerly owned by the city, has been purchased by the hospital. Some of the buildings thereon are being remodeled to serve as dormitories for male employees. A great need exists for housing facilities for graduate nurses, male nurses and resident doctors. Seventy-one physicians live in the hospital; the facilities of the hospital for supplying rooms to the resident staff are severely taxed.

More beds in the Baker Memorial have been made available for patients, for the demand for beds has steadily risen. Two hundred and twenty-six of the possible 300 beds are now in commission.

The hospital has sustained great losses in the death of Dr. George Bigelow and of Mr. Robert Homans and Mrs. Nathaniel Thayer. Mr. Homans and Mrs. Thayer had served for many years on the Board of Trustees; their services to the hospital were outstanding.

The Staff has lost through resignations the services of Dr. Tracy Putnam, Dr. Philip Wilson and Dr. Frederick Lord. The first two go to other fields of activity, and, as the report suggests, they will add their contribution to that of the large number of Massachusetts General Hospital graduates who in every field of medicine and in many places are putting into daily practice the lessons and the ideals taught them by the Massachusetts General Hospital.

ADVICE TO PARENTS

Your child is now ready to go to school. It is most important that before entering he should be as physically fit as possible. Our aim is to have every child enter school in such a condition that he will contract the fewest possible diseases and thus assure regular attendance.

The Worcester District Medical Society is joining the Board of Health in giving you the following information:

> Whether or not your child has been examined periodically it is most important that now he have a complete physical examination for he should not enter school with any handicap that will interfere with his education. The earlier the handicaps are found the greater the opportunity will be to have them corrected before the opening of school.
>
> There are defects of the teeth that can be remedied by your dentist with consequent improvement of health and general appearance.
>
> Your physician after completing the general physical examination will make such recommendations as are needed to put your child in the best physical condition.

These organizations agree in the great desirability of stamping out smallpox and diphtheria. These two diseases in the past have been widespread and have given a high rate of mortality. To-day these diseases are unnecessary and inexcusable. The procedures which prevent these diseases are safe. Any physician can give this protection. Every child should have it.

Worcester Board of Health,
Worcester District Medical Society,
Worcester Society for District Nursing.

CORRESPONDENCE

POLIOMYELITIS CONVALESCENT SERUM

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

June 25, 1935.

Editor, New England Journal of Medicine,

In keeping with its practice of the past few years, the Department of Public Health is reëstablishing as of July 1 its poliomyelitis consultation service. The purpose of this is to assist physicians in the early diagnosis of preparalytic cases; in other words, those cases that may perhaps benefit from convalescent serum, if indeed there is any therapeutic value to this serum. Requests for assistance may be made through the office of the Department, Capitol 4600, or by calling Kenmore 8100 outside of the regular office hours. In making such service available for those cases unable to afford private consultative assistance, the Department must rely on the individual physicians to request assistance only in those cases where there is a reasonable presumption of the preparalytic form of the disease, and must withhold such consultation in the absence of such presumption. In the past, too many cases having no remote resemblance to the disease have been referred to it.

The Department has likewise a small and extremely limited supply of convalescent serum that is available for the treatment of preparalytic cases where the diagnosis has been confirmed by lumbar puncture. Such serum is in the custody of certain hospitals so situated as to be readily available for the entire State. In furnishing this serum, the Department guarantees nothing more than its sterility, holding out no surety as to therapeutic value. On the contrary, what evidence there is available would strongly suggest that the serum, while harmless, is of no value in the treatment of even the preparalytic form of the disease. The Department, in furnishing the serum, is thus departing from its established policy of distributing only biologics of unquestioned value. May I bespeak the assistance of the medical profession in the due conservation of this limited supply of serum, for with the increasing lack of evidence as to its value, replenishing of the serum supply may be difficult, if not impossible.

Very truly yours,
HENRY D. CHADWICK, M.D.,
Commissioner of Public Health.

MEDICAL CARE OF THE INDIGENT

June 21, 1935.

Dear Editor:

Since ten years ago when you published the first article advocating State Medicine* reams have been written to forestall such a rational solution to the problem of adequate medical care. In the meantime general socio-economic conditions have undergone a permanent metamorphosis. Public health and medical charities have continued to encroach upon private practice. The former cannot be curbed, because of the popular demand; but the latter can, because both the malevolent sociologist and the conservative physician are agreed that the care of the indigent is a purely public matter.

Of this the people, themselves, can readily be convinced as soon as they are shown the inefficiency and expensiveness of the prevailing ways of furnishing medical care to the poor. In the first place our out-patient departments where patients can be treated most economically are open such a few hours relatively to the demand, that quantity rather than quality practice predominates and too many cases are transferred to the house to await the convenience of the various necessary consultants and even the laboratory technicians. A hospital is no cheap lodging place for the disabled under observation or ready for special treatment. So crowded, moreover, are the clinics that many persons with symptoms of incipient disease begrudge the time necessary to obtain advice that might prove invaluable.

*A communication by Dr. G. W. Haigh.

City physicians averaging fifteen to twenty-five cents a call rush about ministering to those unable to go to the dispensaries but dumping the ones requiring additional visits upon the hospitals. In towns where doctors are paid for attending the needy on a reduced fee basis there is bound to be some discrimination between classes of patients. Another fact that will astound laymen is that at the staff meetings of private and municipal hospitals the cases discussed are those of patients who died and not as in state hospitals those of living patients who are still able to enjoy the advantages of the combined knowledge and skill of the group.

There appears, therefore, no good reason for not giving more consideration than heretofore to the proposition expounded in the issue of The *New England Journal of Medicine*, Volume 208: 1273 (June 15) 1933, under the title, "State Medicine for the Indigent: A Rational Plan".

Yours truly,

G. W. HAIGH.

242 Burncoat Street,
Worcester, Mass.

A REJOINDER REGARDING GERMAN HEALTH INSURANCE

Julius Rosenwald Fund
4901 Ellis Avenue,
Chicago

June 25, 1935.

Editor, *New England Journal of Medicine*,

The letter published in your issue of June 13, criticizing the article on "Recent Changes in German Health Insurance under the Hitler Government," requires a word. The deplorable repressive policy of the Hitler government in respect to Jewish physicians had no bearing on the main point which the article was intended to bring out, namely, that the organized medical profession of Germany has, by the actions described in the article, been placed in a more responsible position than ever before with respect to the medical services under German health insurance. This concerns not so much the addition of a physician to the Council of each local health insurance unit, but the new and much more important position accorded the national representatives of the medical organizations in Germany.

Very truly yours,

MICHAEL M. DAVIS.

THREE IMPORTANT WORKMEN'S COMPENSATION BILLS

Editor, *New England Journal of Medicine*,

New York State has just passed three laws which should be of interest to physicians and workmen in Massachusetts.

I refer to the Coughlin-McCaffrey Bill, the Canney Bill, and the O'Brien-Kantowski Bill.

The last-named bill is of particular interest to physicians and is designed to curb all possible medical abuses.

The State Industrial Commissioner provides a schedule of fees to be charged.

A roster of physicians, qualified and willing to do Workmen's Compensation work, is prepared by the Labor Commissioner, on the recommendations of the various County Medical Societies.

Note this—The Employee, not the Employer, is to choose his physician from the panel. Workmen's Compensation in New York had become just a racket, a condition which Massachusetts "Compensation" is fast approaching, as far as the medical end of it is concerned.

The Insurance Companies advise the employing concerns to insist that injured workmen report to their clinics in cases of accident.

Due to the scarcity of work, workmen are afraid to antagonize their employers, and, as a result, go to the Insurance Clinics in cases of accident.

A tremendous number of nurses are employed by these clinics, under the supervision of a doctor. These nurses are doing the work that properly belongs to the local physicians.

The Legislative Committee of the Massachusetts Medical Society and the Legislative Committees of the different District Societies should get a copy of these bills; they should contact the Labor interests; and, in conjunction with them, introduce bills similar to those of New York, in the next Legislature.

CHARLES MALONE, M.D.

46 St. John Street,
Jamaica Plain, Mass.

CALL RIVERSIDE FIRST

Editor, *New England Journal of Medicine*,

If you are really down and out call Riverside as per ad. No matter where you are when death occurs "call Riverside" it says.

SAMUEL B. WOODWARD, M.D.

(Advertisement)

COST IS A MATTER OF YOUR OWN DESIRE

There is only one type of funeral at Riverside—the finest—even though you may pay as little as $55 for the casket. *No matter where you are when death occurs, call Riverside first.*

RIVERSIDE

Memorial Chapel

76th Street and Amsterdam Ave. ENdicott 2-6600

for Westchester phone New Rochelle 1286

for Long Island phone FAr Rockaway 7-7100

For New Jersey phone Long Branch 3678-J

RECENT DEATHS

RING—ARTHUR HALLAM RING, M.D., Superintendent of the Ring Sanatorium and Hospital, Inc., at Arlington Heights, Massachusetts, died suddenly at his home on Hillside Avenue, Arlington Heights, June 25, 1935. Dr. Ring was born in St. John, N. B., in 1874.

Seven years later the family moved to Arlington. His premedical education was acquired at the Worcester (Mass.) Academy and his medical degree was conferred by Boston University School of Medicine in 1897. Later he studied at the Harvard Medical School.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association. In 1914 he became Superintendent of the Ring Sanatorium and Hospital, and President of the Corporation.

During the war he was Chief of the Neuropsychiatric Service at the Army Hospital at Fort Sheridan. He retired with the rank of Major. He had been Assistant Professor of Neurology at the Boston University School of Medicine for many years. He was prominent in Masonic bodies, and many civic and social organizations.

Dr. Ring is survived by his widow, Dr. Barbara Ring, who is Treasurer of Ring Sanatorium; a son, Hallam T. Ring, business administrator of the Sanatorium; a brother, Harold E. Ring; a sister, Mrs. Willard F. Gay and a grandson, John Hallam Ring, all of Arlington.

POLLANO—Walter A. Pollano, M.D., of 238 Haverhill Street, Lawrence, died from a heart attack, after a brief illness, June 25, 1935. He was born in Sessa-Aurunca, Italy, in 1879. His early education was acquired at the University of his native city and at the University of Naples. After coming to America he became a registered pharmacist and later graduated from the Middlesex College of Medicine and Surgery, and served an internship at the Lying-In Hospital in New York City.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association.

He is survived by his widow, Mrs. Dora Pollano, a daughter, a son, four brothers, and a sister.

SWAN—William Donnison Swan, M.D., of 167 Brattle Street, Cambridge, died June 25, 1935, at his summer home in Annisquam.

Dr. Swan was born in Kennebunk, Maine, the son of Joshua and Sarah (Hodges) Swan in 1859. His premedical education was acquired at Harvard College where he received his A.B. with the class of 1881. He graduated from the Harvard Medical School in 1885. He served as intern at the Massachusetts General Hospital and the Boston Lying-In Hospital and then pursued postgraduate studies at Vienna. On his return he engaged in practice in Cambridge.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association and had served as medical examiner of the first Middlesex District for over thirty years. He was honorary president of the Cambridge Hospital, having previously served as President and Trustee. He was a member of the Harvard Club, the Union Club of Boston and the Laurentia Club of Canada.

Dr. Swan is survived by a son, William D. Swan, a daughter, Mrs. J. Frank Brown, and a sister, Mrs. J. Bertram Williams.

WITHEE—Frederick Elmarian Withee, M.D., of 9 Forest Street, Newton Highlands, died June 30, 1935. He was born in Vassalboro, Maine, in 1864, and graduated from the College of Physicians and Surgeons of Baltimore in 1892.

He joined the Massachusetts Medical Society in 1897 and retired in 1931. He was also a Fellow of the American Medical Association. He maintained practice until within a day of his death. He was a member of the Staff of the Newton Hospital for seventeen years, and on his retirement was made an honorary member. He served as physician to Newton schools for twenty-nine years and during the World War served as captain in the Medical Corps at Camp Devens. He was a member of the American Legion.

His widow, Mrs. Addie L. (Brown) Withee, survives him.

OBITUARIES

DR. DUNCAN CAMPBELL SMYTH

Dr. Duncan Campbell Smyth was born on May 8, 1885, at Port Hood, Nova Scotia. He was the son of Christopher Smyth and Ellen Somers and grandson of the Hon. Peter Smyth. He died June 11, 1935.

He received his early education at the Port Hood Academy and later at the University of St. Francis Xavier's College in Antigonish, Nova Scotia. From this college he received the degree of Bachelor of Arts in 1904. Following the footsteps of his brother, the late Dr. P. Somers Smyth, prominent eye specialist of Boston, who died in 1929, he entered the Harvard Medical School and graduated therefrom in 1909. He interned at the Massachusetts Eye and Ear Infirmary subsequently engaging in practice in Boston.

On January 1, 1914, he married Alice G. Rice and by this marriage he leaves two children, a daughter, Pauline, aged seventeen years, and a son, Duncan, aged twenty years.

Dr. John E. Somers, who practiced his profession in North Cambridge for many years, was an uncle of the deceased.

Dr. Smyth was a Senior Surgeon in the Department of Otolaryngology at the Massachusetts Eye and Ear Infirmary. He was a finished operator. He made a distinguished name for himself in bronchoscopy and esophagoscopy. He invented two bronchoscopic instruments and one operation bears his name. His record in removing foreign bodies from the bronchi is exceptionally brilliant. He was distinguished for his good judgment and his dislike of fads and shams. He was one of the first to recognize the value of the formation of the Thoracic Clinic at the Massachusetts General Hospital and was the strongest representative of the Infirmary on this service. His opinions were highly valued by the members of this group. In the American Bronchoscopic Society, of which he was Vice-Presi-

dent a year or two ago, his opinion was equally valued.

Dr. Smyth was not given to ready speaking. He usually spoke last, and had the gift of hitting the nail on the head. He had a dry wit which brightened any discussion. When necessary he could hit hard. In the Wednesday Clinical Meetings everyone felt that the meeting would be a success if he were there, and generally he was. He made the hospital his first interest. He did not wait until his time of service came around, to appear. Nearly every morning he would show up ready to tease somebody and to help everybody. He was a bit old-fashioned in some ways, especially in his loyalty and respect for his superiors. He played a good game of cards. He was a splendid companion and thoroughly a man's man.

Dr. Smyth was at the height of his powers at the time of his death. He was next in line for senior positions in medical societies.

A little over a year ago he had warning that he was to share the fate of his brother, who died of cerebral hemorrhage five years ago. He had a slight hemorrhage, and on June 11 a fatal one.

A few years ago Dr. Smyth bought for summer use a house at Marshfield, Mass., which Daniel Webster built for one of his sons, and in which at various times Webster himself had lived. Dr. Smyth had long been an admirer of Webster, and he began to collect Webster items. In the Webster room of Dr. Smyth's house, a number of valuable Websterian relics were found, and transferred to the town authorities. In his pursuit of this material he made a regular and systematic round of the second-hand book shops. Dr. Smyth was interested in civic affairs and was a member of the Board of Trade of Marshfield.

He was a lover of birds and dogs. He took great interest in the many birds about his Marshfield home. Working his black and white setter, Beverly, gave him great relaxation from his medical work. When she was ready to give birth to her first litter of puppies a month or so ago, her welfare caused him more concern almost than his hospital duties.

He was a member of the American Laryngological Association, the American Otological Society, the American Rhinological, Laryngological, and Otological Society, the American Academy of Ophthalmology and Otolaryngology, and the Massachusetts Medical Society. For many years he was instructor in Laryngology at the Harvard Medical School.

He was a member of the Harvard Club of Boston, and until recently, a member of the Boston Art Club.

H. P. M.

DR. WILLIAM HERMAN
1891-1935

The sudden death of Dr. William Herman on January 25, 1935, brings a poignant realization of the unique position which he had come to occupy in this community. He was born in 1891 in Nashville, Tennessee, and graduated from Yale University in 1912. He then entered business for three years, but found that it offered no adequate expression for the humane and esthetic aspirations which made up so large a share of his life. He hesitated for a time between the study of architecture and that of medicine, but finally chose the latter and entered the Harvard Medical School in 1916. The extraordinary gift for forming friendships which was his most outstanding trait began at once to make itself felt, among his fellow students, the members of the faculty and diverse artistic and social circles of the city. Professionally, it soon became evident that the psychological and sociological aspects of medicine were far more to his taste than the physiological ones. On graduation, he completed a medical interneship at the Massachusetts General Hospital, then a psychiatric interneship at the Phipps Clinic in Baltimore, became attached to the Boston Psychopathic Hospital, and worked for a year in Amsterdam under Professor Brouwer and Professor Kappers on a problem in neuroanatomy.

As his psychiatric training progressed, it became more and more obvious that he must inevitably ally himself with the analytic school of psychology. His unequaled gift of intuition combined with an uncompromising candor and faculty for self-criticism made no other course possible. His proposal to practice psychoanalysis engendered considerable criticism and even ridicule, but he calmly held to his plans and convictions without a trace of the truculent attitude which too often mars the discussion between schools of psychology. He received analytical training from Dr. van der Hoop of Amsterdam, Dr. Jung of Zürich, Dr. Franz Alexander and finally Dr. Hans Sachs.

From the first, his psychiatric practice was an unqualified success. His gift for obtaining confidence, his keen insight into the depths of complicated situations and his faculty of summing up problems in a vivid and convincing form, contained a large creative element which entirely transcended the mere application of technique. He inspired trust and affection in his patients, rather than dependence. Perhaps his most spectacular professional success was obtained in the treatment of a group of patients with convulsions, which he was preparing to report after several years' observation. He played a large part in the reorganization of the Boston Psychoanalytic Society, and it is largely to his wise counsel and breadth of view that the society owes its reputation for liberalism combined with high professional standards, which makes it respected throughout the country. He was associated with Dr. Stanley Cobb's department since 1926, and gave every year an elective seminar in psychiatry which has deeply affected the outlook of many students. Plans were maturing to allot him a much larger share of the teaching.

Dr. Herman married Susan Evarts Hale of Windsor, Vermont, in 1925, and a daughter and a son were born to them.

NOTICES

REMOVALS

WILLIAM E. PREBLE, M.D. and FRED C. GUNTER, M.D., announce the removal of their offices to 73 Bay State Road, Boston.

PHILIP MYSEL, M.D., announces the removal of his office to 483 Beacon Street, Boston.

REPORTS OF MEETINGS

HOUSE OFFICERS ALUMNI ASSOCIATION OF THE MASSACHUSETTS MEMORIAL HOSPITALS

The first Annual Reunion of the House Officers' Alumni Association of the Massachusetts Memorial Hospitals of Boston took place Saturday, June 22, 1935. More than one hundred and eighteen former interns and residents were present to participate in the reunion festivities.

An elaborate program was prepared consisting of clinics, demonstrations of various tests, operations, inspection of the hospitals and laboratories, conferences, and the reading of papers by eminent physicians. At the banquet, Professor Von Misha, Professor of Mathematics at Heidelberg University, and now a member of Johns Hopkins Institute, delivered an address. Graduating exercises followed the general program. The festivities were terminated with the reunion banquet held at the University Club.

The list of graduates and interns is as follows:

Residents:—

Anson Herbert Kendall, M.D.
Richard Blaisdell Wingate, B.S., M.D.
Albert Gustaf Lundgren, A.B., M.D.
Dora Eva Brault, M.D.
Arthur J. Gorman, Ph.B., M.D.
Thomas Damon Gorham, D.M.D.
Bianca Rachel Lia, B.S., M.D.

Interns:—

Norman Howard Boyer, M.D.
Haig Carapetyan, A.B., M.D.
Luther W. High, A.B., M.D.
Henry Herman Lerner, S.B., M.D.
Charles Joseph Monestere, B.S., M.D.
John Thomas Nasse, B.S., M.D.
Evelyn Louise Parsons, A.B., M.D.
Kenneth Wilkins Sewall, A.B., M.D.
Wedgwood Perkins Webber, B.S., M.D.

The election of officers resulted in a reëlection of the former officers of the association, as follows: Dr. William G. Moran, President; Dr. Ralph M. Hopkins, Vice-President; Dr. William Freeman, Secretary-Treasurer. The Executive Committee: Dr. Charles F. Branch, Chairman, Drs. Sanford B. Hooker, Samuel M. Vose, Welman B. Christie, Thomas A. Kelley, Martin F. Crotty, Paul E. Dunn and G. M. Loomer. Drs. Henry M. Pollock, Superintendent of the hospital and Alexander S. Begg, Dean of Boston University School of Medicine, were elected to honorary membership.

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

Doctor Christian conducted the last of the Thursday afternoon clinics for the year 1934-1935 on the afternoon of April 25. He discussed several cases of anemia and stressed the important features of each. The first case was a woman twenty-seven years old, who had been mentioned in one of the previous clinics (April 11) who had had a temperature of one hundred and six degrees, a pulse of one hundred and sixty, and a red blood count of one million and ten thousand with twenty-two per cent hemoglobin. The temperature had been due to a profuse bronchial pneumonia as shown by x-ray. After two weeks' treatment with liver extract her hemoglobin had risen to sixty-six per cent, and her red count to three million, one hundred and seventy thousand. Her reticulocyte count had reached a high of thirty-two per cent. Her clinical improvement likewise had been striking with a marked increase in appetite and a generally improved appearance. The question of transfusion had arisen in this patient, but Doctor Christian pointed out the danger of a reaction in a very sick patient and said that such a procedure should be avoided if possible. This remarkable response to liver shows the case to be one of pernicious anemia. It is important to impress such patients thoroughly with the fact that they have a deficiency disease, and that they must always continue to take liver.

The second patient was a forty-eight year old woman who entered with a hemoglobin of thirty-six per cent, a red count of one million five hundred and fifty thousand, an icteric index of fifteen and a blood smear typical of pernicious anemia. This patient's chief complaint had been menorrhagia. Physicians are apt to forget that bleeding often is due to anemia, rather than vice versa. Liver extract was given to this patient, and she likewise showed marked improvement with a reticulocyte count of eleven on the third day.

The third patient demonstrated that pernicious anemia patients may have pink cheeks, a condition which Osler called "anemia rubra". This sixty-five year old woman had fifty-two per cent hemoglobin, one million seven hundred and ninety thousand red cells and an icteric index of twelve. Doctor Christian said that polycythemic people likewise may be pale. The fourth patient also had pernicious anemia and had been taking liver for some time in inadequate amounts.

The next patient had a hemoglobin of forty-five per cent, a red count of four million, two hundred thousand with a small cell volume and an icteric index of eight. Many such patients have the Plummer-Vinson syndrome showing a disturbance of deglutition as did this patient. Pernicious anemia patients occasionally show this also, although it is much more frequent in the microcytic anemias. In this patient several attempts to obtain gastric juice by stomach tube had failed. This latter type occurs almost exclusively in women, usually in the

fourth decade of life and may be associated with pregnancy. Doctor Christian spoke briefly of chlorosis, a similar type of anemia occurring in young girls in the second decade of life and pointed out that this condition had apparently diminished in incidence almost to the vanishing point. This patient had a palpable spleen, bringing up consideration of what has been called splenic anemia, a term now fallen into disuse. Fevers may be due to anemia unless they are high, in which case another cause must be found. The microcytic anemias are treated with large doses of iron.

The next case had a red count of two and a half million, a hemoglobin of fifty-two per cent, and an icteric index of five. Positive guaiac test in the stools suggested a secondary anemia, due to bleeding somewhere in the gastrointestinal tract, and the question of neoplasm arose. In this case, if there should be no response to liver, iron would be used in its treatment. Subsequently diligent search was made for neoplasm in the gastrointestinal tract, but x-ray studies failed to reveal anything abnormal.

A man was shown who had entered with headache, nausea, vomiting, and edema. He presented a secondary type of anemia with hemoglobin of eighteen to twenty-two per cent, resulting from a chronic renal lesion. Another man was shown who had been treated with malaria therapy for central nervous system lues. This treatment had destroyed many of his red blood cells, and thus caused his secondary type of anemia which had been treated in the usual way with large doses of iron.

In conclusion Doctor Christian said that some observations indicate that the iron present in a normal diet is not sufficient to keep up the hemoglobin content of the blood in the primary microcytic type of anemia and that large amounts of inorganic iron are needed to supply this deficiency. Organic iron is very much higher in price and very definitely inferior in its therapeutic value.

CLINICAL MEETING AT THE MASSACHUSETTS GENERAL HOSPITAL

Doctor Allen presided at a clinical meeting at the Massachusetts General Hospital on the sixteenth of May. Dr. Paul D. White spoke on "The Medical Aspects of Pick's Disease." He discussed briefly fifteen cases of the condition which have been studied at the Massachusetts General Hospital. Pick's disease is a chronic thickening of the pericardial sac which prevents the heart from filling normally in diastole. There may be a complete absence of the sac with or without calcification. It is rare to have cardiac disease associated. Doctor White reviewed the historical aspects and pointed out that after one hundred years of nonrecognition of this condition, Pick redescribed it in 1896.

A history of a previous pericarditis, an unexplained enlargement of the liver with ascites, especially in the young, without syphilis, cancer, or a history of alcohol should cause the physician to think of Pick's disease. Doctor White gave the histories of several patients and demonstrated the cases. The first was a fifteen year old girl who had had intermittent smothering spells eight years before entry, over a period of two months, which recurred one year before entry. Her liver became enlarged and her abdomen filled with fluid. She had no pain over her heart, and her blood pressure was one hundred and thirty over ninety-five. The electrocardiogram showed an inversion of the T-wave in leads I and II. In 1928 she began to have generalized edema and Doctor Churchill resected a constricting band which was lying across the inferior vena cava. On the fifth day postoperatively there was a spontaneous diuresis, and within a month she had lost thirty pounds. Since then she has been perfectly well and her activities have been unrestricted. This was the first successful cured case of this condition on this side of the Atlantic.

The second case was a thirty year old woman, who also showed edema of her feet and legs, ascites, and enlarged liver, and who had a family history of tuberculosis. There was a loud third sound at the apex. The electrocardiogram showed a low voltage. The pericardium was fibrosed, and was removed by Doctor Churchill with rapid recovery and a complete cure.

A nineteen year old boy had dyspnea as the first symptom, followed by generalized swelling and a history of pleurisy with bronchitis six months before entry. Physical examination showed distended neck veins, a thickened pleura and marked pitting edema of the legs and scrotum. By fluoroscope no pulsation could be seen along the right border of the heart. The T-waves were inverted in leads I and II, and the serum protein was three grams per cent. Doctor Churchill removed a thickened pericardium in 1933 with excellent recovery, and a loss of thirty-five pounds of fluid.

A twelve year old boy had a calcified pericardium by x-ray; his father had died of tuberculosis. The veins of his neck, arms, and upper chest were distended, his liver was enlarged, and there was fluid in his belly. The T-wave in lead III was inverted. There was rapid improvement after the operation.

A ten year old girl entered in 1931. She had been a semi-invalid since the age of five, because of marked ascites. An omentopexy did not help the ascites. The electrocardiogram showed low voltage, and the serum protein was 4.3 grams per cent. In 1933 Doctor Churchill removed a portion of the thickened and slightly calcified pericardium, and this was followed by marked improvement.

The next patient was a school girl who complained of abdominal swelling and occasional puffiness of the eyes. There was a third sound at the apex and a moderate distention of the neck veins. The T-wave was inverted in leads II and III. She has steadily improved since her operation in February of this year.

A sixteen year old boy entered with a history of ascites, edema, and enlarged liver at the age of fourteen, and a probable pericarditis at the age of eleven and a half. Physical examination showed an

engorged and pulsating jugular vein, a paradoxical pulse and a moderately enlarged heart which was fibrillating. The pleura was markedly thickened, as was the pericardium. At operation an area of pericardium which was partially calcified was removed, but postoperative improvement was slow, so that in 1933 Doctor Churchill again operated and removed a larger amount of calcified pericardium without any further help. A liver biopsy showed slight fibrosis and an omentopexy was done. At the present time he is improving on a restricted salt and fluid intake.

There have been three fatal cases. Two had severe active tubercular pericarditis and died very soon after operation. The other fatal case showed extensive cirrhosis in a fifty-two year old person. Two other patients were slightly benefited and lived about a year after operation.

In summary, Doctor White said that the first symptom is usually dyspnea, abdominal ascites, or both. There is no palpitation. The two most important physical signs are an enlarged liver and engorged jugular veins. There is frequently no pulsation at the right border of the heart by fluoroscope. Many cases have thickened pleura and increased hilus markings. The electrocardiogram usually shows a low voltage with inverted or flattened T-waves. The serum protein is frequently low and the liver function is usually normal.

Doctor Churchill spoke briefly of the surgical aspects of Pick's disease. He pointed out that a very sick patient can stand a severe operation if it will relieve him of an overwhelming burden. The patients operated on for Pick's disease frequently are in better condition at the end of the operation than they were at the beginning. If the patient has acute tuberculous pericarditis, he will die, as the heart is small and feeble and the tamponade cannot be relieved. Therefore, these latter cases should be avoided surgically.

An excellent motion picture showed the details of the operation. Ether is used for the anesthetic, and the oxygen tent is employed routinely postoperatively. The anesthetic is administered intratracheally to maintain a positive pressure in case the pleural cavities are accidentally opened. There is some danger of opening the heart. The wound is closed tightly with silk sutures.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JULY 8, 1935

Wednesday, July 10—
†12 M. Clinico-Pathological Conference. Children's Hospital.

Thursday, July 11—
*12 M. Clinico-Pathological Conference. Massachusetts General Hospital.

Saturday, July 13—
*10-12. Staff rounds at the Peter Bent Brigham Hospital. Open to practicing physicians.

*Open to the medical profession.
†Open to Fellows of the Massachusetts Medical Society.

August 29 - September 5—Latin American Congress of Physical Therapy, X-Ray and Radium. For information address Dr. Madge C. L. McGuiness, 1211 Madison Avenue, New York City.

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City.

October 21 - November 2—1935 Graduate Fortnight of the New York Academy of Medicine. See page 898, issue of May 9.

October 28 - November 1—The Twenty-Fifth Clinical Congress of the American College of Surgeons. See page 1065, issue of May 30.

BOOKS RECEIVED FOR REVIEW

The Kidney in Health and Disease. Edited by Hilding Berglund, Grace Medes and others. 754 pp. Philadelphia: Lea & Febiger. $10.00.

Ten Years of Rural Health Work. Rutherford County, Tennessee, 1924-1933. W. Frank Walker. 82 pp. New York: The Commonwealth Fund.

Epidemics and Crowd-Diseases. Major Greenwood. 409 pp. New York: The Macmillan Company. $5.50.

The Biochemistry of Medicine. A. T. Cameron and and C. R. Gilmour. Second Edition. 518 pp. Baltimore: William Wood & Company. $6.00.

Aids to Surgery. Cecil A. Joll and Reginald C. B. Ledlie. Sixth Edition. 612 pp. Baltimore: William Wood & Company. $2.75.

Handbook of Anaesthetics. J. Stuart Ross and H. P. Fairlie. Fourth Edition. 299 pp. Baltimore: William Wood & Company. $4.00.

The Principles and Practice of Urology. Frank Hinman. 1111 pp. Philadelphia and London: W. B. Saunders Company. $10.00.

A Textbook of Biochemistry. Edited by Benjamin Harrow and Carl P. Sherwin. 797 pp. Philadelphia and London: W. B. Saunders Company. $6.00.

Economic Problems of Medicine. A. C. Christie. 242 pp. New York: The Macmillan Company. $2.00.

Sedgwick's Principles of Sanitary Science and Public Health. Rewritten and enlarged by Samuel C. Prescott and Murray P. Horwood. 654 pp. New York: The Macmillan Company. $4.25.

Emotions and Bodily Changes. A survey of literature on psychosomatic interrelationships 1910-1933. H. Flanders Dunbar. 595 pp. New York: Columbia University Press. $5.00.

International Clinics. Volume II. Forty-Fifth Series, 1935. Edited by Louis Hamman. 327 pp. Philadelphia, Montreal and London: J. B. Lippincott Company.

Aids to Ophthalmology. N. Bishop Harman. Eighth Edition. 242 pp. Baltimore: William Wood & Company. $1.25.

BOOK REVIEW

The Newcastle Upon Tyne School of Medicine, 1834-1934. G. Grey Turner, assisted by W. D. Arnison. Andrew Reid & Co., Ltd.; Strawberry House, Newcastle upon Tyne, 1934. xii + 221 pages.

The history of a medical school is always of interest to the medical profession. This book, written by a well-known British surgeon, who has many friends in this country, is an attractive account of the Newcastle School, which recently celebrated its one hundredth anniversary. The book is well illustrated and attractively published.